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ABSTRACT

Using a workbook format, this guide explains the use of seven types of audiovisual equipment: overhead projector, Bell and Howell 16mm motion picture projector, Dukane filmstrip projector, record player, Kodak slide projector, Wollensak 2552 tape recorder, and JVC videocassette color video system. An introductory section includes (1) a media survey to assess ability to use the audiovisual equipment; (2) an article by Norma M. Harrod, "Use Media? Who Me? I'd Like to But" which lists 50 typically-offered excuses for not using media; and (3) a statement on copyright and audiovisual media by the Association of Media Producers. Separate chapters are then devoted to each of the seven types of equipment. Each chapter includes specific steps in equipment operation and maintenance, suggestions for its use, and ideas for creating materials such as overhead transparencies and slides. A series of worksheets for media students in each section incorporates a variety of applications activities such as problem-solving, sentence completion, vocabulary games and puzzles, and matching. Self-quizzes and tests are provided for each topic. A chart shows the effectiveness of various types of instructional media in relationship to different types of learning, and a 24-page glossary of current audiovisual terms is included. (LMM)

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MEDIA MANUAL

(How To Use Media Equipment)

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By: Dr. Nancy Jones
Media Specialist

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Name:

Cluster:

Assess your ability to use the following audio-visual equipment.

(1) am competent (2) need refresher (3) am complete novice

Beseler Overhead Projector	1	2	3
Bell & Howell 16mm Movie Projector	1	2	3
DuKane Automatic Sound/Filmstrip Projector	1	2	3
Kodak Carousel Slide Projector	1	2	3
Wollensak Slide/Sync Tape Recorder	1	2	3
JVC Video Equipment	1	2	3

Rate the use of the following audio-visual equipment in competency based instruction (1 - 6).

Beseler Overhead Projector _____

Bell & Howell 16mm Movie Projector _____

DuKane Automatic Sound/Filmstrip Projector _____

Kodak Carousel Slide Projector _____

Wollensak Slide/Sync Tape Recorder _____

JVC Video Equipment _____

Assess your ability to produce materials for the following audio-visual equipment.

(1) am competent (2) need refresher (3) am complete novice

Besler Overhead Projector	1	2	3
Bell & Howell 16mm Movie Projector	1	2	3
DuKane Automatic Sound/Filmstrip Projector	1	2	3
Kodak Carousel Slide Projector	1	2	3
Wollensak Slide/Sync Tape Recorder	1	2	3
JVC Video Equipment	1	2	3

Use Media? Me? I'd Like To, But . . .

Norma M. Harrod

Any "media leader" knows that there are many diverse excuses for a closed-circuit linear mind. Try these quips in your memory-scope. No doubt these reruns, tried and true, will bring many more to mind.

1. I can't find the electrical outlet.
2. The equipment doesn't like me.
3. Machines and I don't get along.
4. There just isn't enough time to mess with all that garbage.
5. You mean you have to plug the VTR into the electricity, too?
6. *At this point in time*, I must state that I absolutely do not watch television.
7. That kind of foolishness should only be done in the media class.
8. The junk never works right when I want to use it.
9. The people in charge won't let anyone else touch the equipment, so there's no sense in trying.
10. I like to use media, but it doesn't fit into my subject area.
11. Kids can't even read, so how can they fool around with trivial playthings!
12. I don't have a camera of my own.
13. We did that three years ago.
14. Those luxuries just cost too much money.
15. Sure, I use media. See the pictures on my bulletin board? I've used them for years.
16. Not everyone can be a creative teacher.
17. I didn't have a class in AV, so how can you expect me to know what to do?
18. My students aren't interested in that kind of silliness.
19. I've spent years using my lectures—they're perfect.
20. When I was a child, we didn't have all those extra things in school.
21. We have so many areas in the curriculum already, anyone can see there isn't time for another extra.
22. Our school doesn't have a film budget.
23. How can you improve on the written word?
24. Send this stupid thing in for repair—the bulb is burned out.
25. You can't let kids mess with that expensive equipment—they'll break it.
26. Somebody stole my extension cord.
27. Using equipment always causes too much confusion, and it interrupts my routine.
28. Only departments with all the money, like athletics, have the hardware.
29. My school is too conservative for such radical changes.
30. I don't get paid extra for making media presentations, so why should I do them!
31. The curriculum is too inflexible to add anything else.
32. The classroom is no place for entertainment.
33. Obviously, AV is just another gimmick for obtaining federal funny money.
34. You mean, I have to plug in the cable jack, too?
35. You have to sign up ahead of time whenever you want to use the equipment. Who can plan that far ahead?
36. Everytime I hook up the equipment, something breaks, so I just give up!
37. The AV hardware always blows a fuse.
38. It doesn't fit into my lesson plans.
39. Television and film are so passive—my lectures are much better.
40. The filmstrip projector always chews up the film.
41. The tape recorder erased the sound.
42. Kids have to learn to read—they already can see and hear.
43. I'm no technician.
44. Of course, I rewound the videotape. Can't you see the reels have been switched around?
45. You plug it in—I don't want to get shocked.
46. Using all that electricity costs the school district too much money.
47. Working with all that extra material takes too much of my free time.
48. Nobody appreciates all that work.
49. How can I be accountable in working with such intangible things!
50. By the time the kids work all the ditto sheets and fill in the notebooks, the time just seems to disappear.

"Use media? Me? I'd like to, but. . ." Is it, in reality, that "I'm afraid"?

Norma M. Harrod *is Media Consultant, USD 497, 9th and New York, Lawrence, KS 66044.*

Copyright and Audio-Visual Media

Statement by the
ASSOCIATION OF MEDIA PRODUCERS

Recent technological developments have increased our abilities to duplicate, store, and transmit audio and visual materials. Consequently, teachers, scholars, and learners today have greater access to ideas and information than was ever before possible.

As educational media producers, we are pleased with this progress, which promises not only to expand knowledge but also to expand the special role and contribution of A-V media to the educational process. At the same time everyone must recognize that progress entails added responsibilities: with the capacity to copy educational materials, schools need to take a second look at what is being copied to make sure that such copying does not violate the rights of others.

Undoubtedly, some of the duplication and transmission of copyrighted materials is without authorization and in violation of copyright. In and of itself—simply as a moral issue—such unauthorized activity should deeply concern all of us in education. Unauthorized duplication of copyrighted materials threatens the well-being of education itself and the educational media industry in particular.

We are convinced that most of the illegal use of copyrighted materials in our educational institutions is unintentional. Many educators mistakenly believe that because they do not actually profit from unauthorized copying, they are entirely within the law. Those who are somewhat familiar with copyright law believe such activity to be "fair use" and therefore legal.

In reality, when someone in a school copies an entire motion picture, filmstrip, record or cassette, or other audio-visual work without the permission of the copyright owner, or copies a portion of any of these works beyond the scope of the legal doctrine of fair use as that term applies to audio-visual materials, those duplicate copies represent lost sales or income to the copyright owner. Hence, the individual or institution is violating the law and participating in what may be judged as the theft of intellectual property. The same holds true for telecasts of such materials over open or closed circuit television systems without a license.

The economic implications of unauthorized copying are perhaps not as simple as they might appear. From the teacher's standpoint, it may first enhance his/her ability to teach without adding to the costs of education. In the long run, however, unauthorized copying is likely to reduce the incentives to publish educational materials. And it runs contrary to the spirit of the private enterprise system, under which we are all entitled to be fairly compensated for our services and products.

Educators rely on labor and professional organizations to ensure that they are treated fairly and are rewarded for their efforts. We, the producers of materials, rely on copyright laws and the broad support of the educational community to ensure that our economic interests are similarly protected.

The danger to our industry is especially acute because audio-visual materials sell in relatively small numbers. Such media as filmstrips, audio tapes, and overhead transparencies sell in quantities of a few thousand over a five-year period in the education market. Motion pictures often sell in the hundreds over an even longer time period. Thus, even if only a small percentage of the 100,000 elementary and secondary schools and the 3,500 colleges and universities in the country made unauthorized duplicate copies of these materials, it would have a harmful impact on the economic return of these products and ultimately, on the economic survival of the companies which produce and distribute them.

Few people in education realize ours is a small industry composed primarily of small companies that are highly vulnerable to economic loss. Unauthorized duplication poses an economic threat which in turn raises the possibility of a significant reduction in the quantity, quality, and diversity of educational materials available to the Nation's schools.

In a multifarious society such as ours, the danger to the community is apparent: such a reduction would represent a profoundly regressive development. This is why we believe the protection of the proprietary rights of educational media produc-

ers is of vital interest to the entire educational community—not simply to the educational enterprises involved.

The objective of the Association of Media Producers is to carry this message to our colleagues in schools, colleges, and libraries. We are currently addressing this problem by:

1. Participating in dialogues on copyright with the leaders of all the major educational organizations in the country;
2. Communicating with educators through articles published in their own journals as well as in the educational trade press;
3. Participating in the national and state meetings of these organizations and making presentations on this issue;
4. Educating the staffs of our industry companies in their own responsibilities as copyright proprietors.

As educators ourselves, we obviously seek the widest use of our educational materials. Our objective is in no way aimed at reducing their availability. *We are not opposed to duplication of our materials; we are against unauthorized duplication.* Unless we protect the economic viability of the educational media industry and the incentive to publish materials for any and all segments of the educational community, this Nation's educational processes will be significantly and senselessly impaired.

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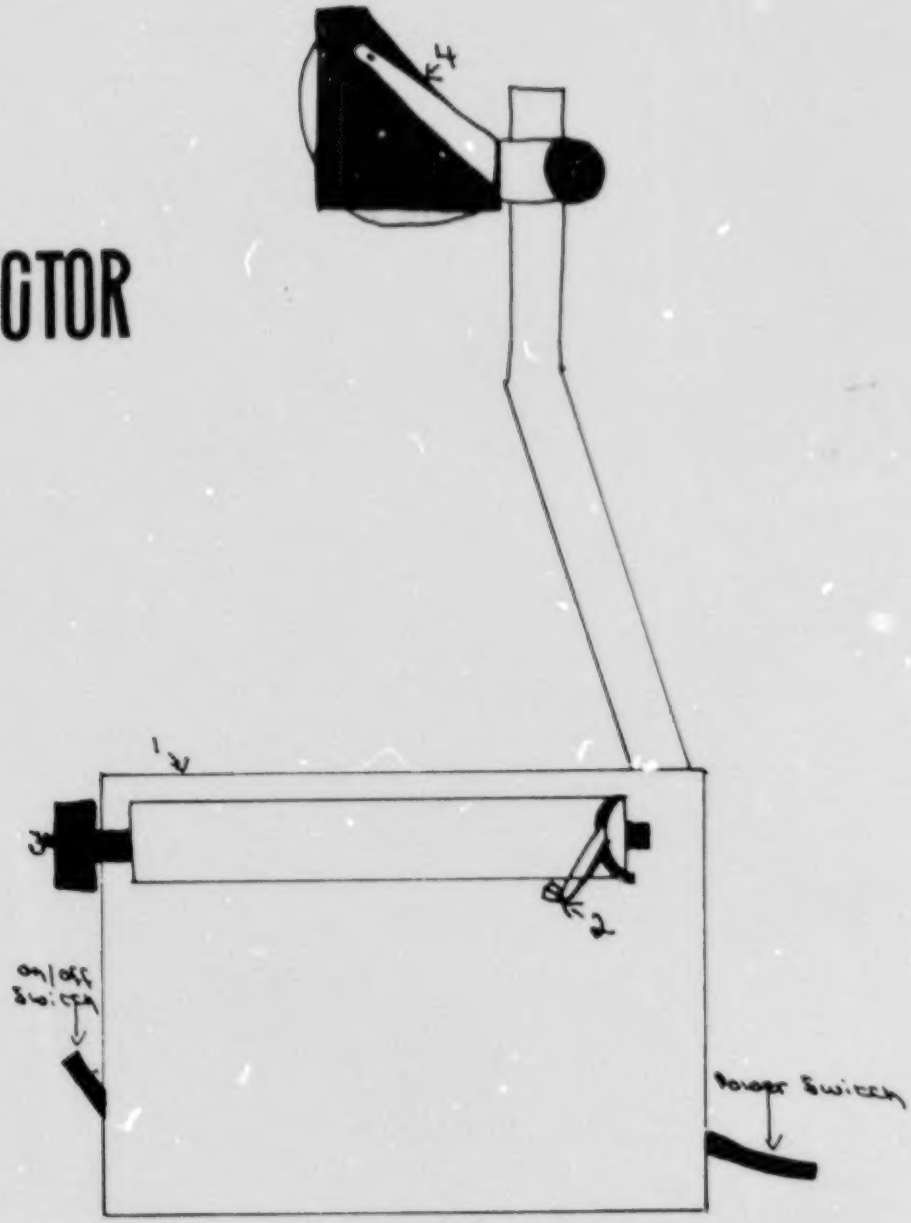
OVERHEAD PROJECTOR



How to Operate the Overhead Projector

1. Set projector on a flat surface at a distance of six to nine feet from the screen.

2. Plug in the power cord.

3. Turn power switch to "on" position.

4. Place transparency or opaque object on projection stage (1).
   a. When you use a clear acetate sheet, use a grease pencil which can be erased with a moist tissue.
   b. When you use a roll of acetate instead os a single sheet, roll it across the stage by turning the crank (2) clockwise. Rewind the roll by turning the crank counterclockwise.

5. Focus image on the screen by turning the focus knob (3).

6. Tilt the lens housing (4) to change the height of the image on the screen.

7. Shut off the machine lamp when you want to talk to the class. Do not move the machine until it has fully cooled; this adds lifetime to the projection bulb.

8. Pack-up when finished: Unplug cord after projector has cooled and return to storage place.

Maintenance

Clean the lens with a camel's hair brush for large, loose dirt; rubber syringe will remove remaining dust. You may also dampen a Q-Tip with lens cleaning solution and rub in a circular pattern and then, dry with another Q-Tip in the same circular pattern. This is number four on the diagram.

The aperture or projection stage (1) may be cleaned by using camera lens tissue, camel's hair brush, water on Kleenex, or window cleaner on tissue.

Remove the power cord by the plug.

Keep the machine covered when not in use.

Clean the projector thoroughly at least once a year.

OVERHEAD PROJECTOR

Most students have seen an overhead projector at some time. It is a machine with a powerful **light which** can shine through a large plastic (acetate) picture or diagram and show it in a larger size on a screen. It works much like a slide projector. As with other machines, there are some reasons why you might want to use the overhead and other reasons why you might not want to. As you read these facts about the overhead projector, fill in the missing words from those on the list.

lighted	controls	overlays	map
audience	face	attachment	uncover
acetate	piece	operate	projector
	grease		

1. The _____ is simple to _____ since it has only three _____.
2. It may be used in a _____ room.
3. If you wish to enlarge and trace the outline of a _____ or _____, you can project it on a large piece of paper and make your drawing.
4. You may cover all of your material except the part you wish your _____ to see, then _____ it a little at a time.
5. Also you may use _____ (that is, pieces that fit over each other; each transparency adds a different part).
6. You may write on your _____ piece with a _____ pencil.
7. With a special _____ you may make the _____ appear to move.
8. You may _____ your audience when giving a report.

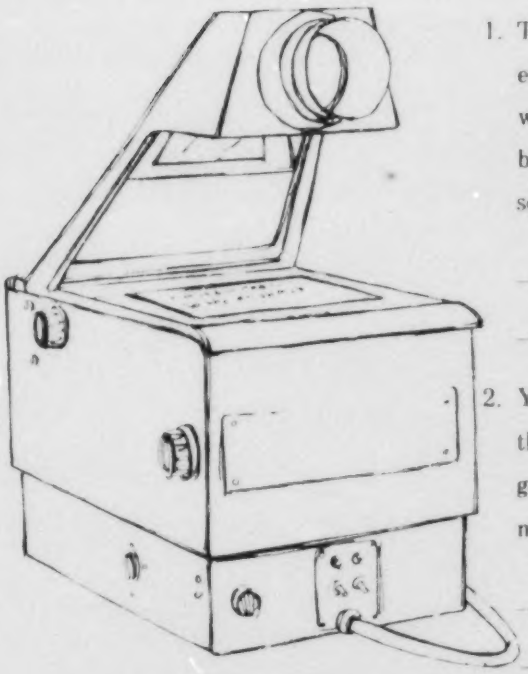
Can you think of some reasons or times when you would not want to use this projector?

_____

_____

_____

OVERHEAD PROJECTOR



1. The overhead projector may be used in many different ways. Besides using regular transparencies (which will be discussed separately) many other objects can be used to show shapes and forms. Can you think of some that can be used?

2. You may present your arithmetic problems, to let the class determine if they are correct, by using a grease pencil on clear acetate. What else in arithmetic might you present using this equipment?

3. If you are going to learn a new game like soccer or volleyball, the game may be shown, step by step by drawing and discussing. How could you later use the acetate and grease pencil to improve performance?

4. How do you think the acetate sheet or roll and grease pencil might be used in music?

5. What uses could you think up for science class?

6. Try experimenting with a partially darkened room to sharpen images. Did it make any difference? Were there particular objects that showed up more sharply than others?

TRANSPARENCIES

Commercial transparencies (those made by companies who specialize in producing educational materials) are often used. They may be of a fairly large size, since the stage or projection surface is 10" × 10".

Frequently *overlays* are used. You will have a chance now to develop one of these sets of overlays on this page.

Suppose we are going to learn about a ruler. The first transparency will show the *inches*. Draw the line for 2, 3, 4, 5, and 6 inches and label each.

The second transparency (first overlay) shows *half inches*. Draw in $1\frac{1}{2}$, $2\frac{1}{2}$, $3\frac{1}{2}$, $4\frac{1}{2}$, and $5\frac{1}{2}$ and label each.

The next overlay will show *quarter inches*. Put in the lines for $1\frac{1}{4}$, $1\frac{3}{4}$, $2\frac{1}{4}$, $2\frac{3}{4}$, $3\frac{1}{4}$, $3\frac{3}{4}$, $4\frac{1}{4}$, $4\frac{3}{4}$, $5\frac{1}{4}$, and $5\frac{3}{4}$. Label each one.

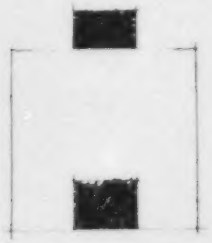
The last one will show each *eighth* of an inch [except 2/8 (which is 1/4) 4/8 (which is 1/2), 6/8 (which is 3/4), and 8/8 (which is 1)]. You will do the rest.

Overlays may be bound together like a book. You show the first, then the first and second, then the first, second, and third, and so on. However, not all transparency overlays are bound, as you may want to vary the order.

MORE ON TRANSPARENCIES

Since transparencies can be made fairly small and shown on a wall, in color and in larger size, they help us save on materials and space. Help yourself learn more about transparencies by completing the missing parts in the sentences. Each small line stands for one letter; the beginning letter is provided.

1. Transparencies may be black or may be made in c _ _ _ _ _. Several d _ _ _ _ _ _ _ _ _ colors may show on the same transparency, as when the land s _ _ _ _ _ _ of a country is shown.
2. However, if there is a series of o _ _ _ _ _ _ _ showing a system or process, such as multiplication, each s _ _ _ is often shown in a different color.



3. Some t _ _ _ _ _ _ _ _ _ _ _ _ _ _ are dimensional and s _ _ _ basic principals such as motion, forces, etc. This is one of the n _ _ _ _ develpoments and there are not as many of these available as in the regular, flat transparencies.
4. You can make your own transparencies from a "master" which is printed on bond paper or translucent tracing p _ _ _ _. There are several ways to m _ _ _ these. Many t _ _ _ _ _ _ _ _ _ _ _ _ _ _ can be made from one master.
5. Felt tip markers or liquid inks may be used if you wish to add c _ _ _ _ to the transparencies you make.
6. If you want to label your transparencies, you may use a variety of systems to make the letters. It is important to learn the correct size of letters to u _ _ _. If the transparency is placed on the floor and you can r _ _ _ the l _ _ _ _ _ _ from a standing position, they are probably b _ _ enough.

EMPHASIZING THINKING SKILLS

You can use the overhead projector to improve reports you give to the class. Here are some activities for you.

1. Your assignment is to show on a graph the growth of population in the suburbs of the city and indicate how rapidly it might rise in the future. Make a transparency of the kind of graph you need ahead of time, placing the dots on the graph, then connecting them with a grease pencil as you discuss the subject.

Suburban Population (in thousands) 1940-1980

21
18
15
12
9
6
3
0

1940 1945 1950 1955 1960 1965 1970 1975 1980

Put the dots on the graph above. (Here are the figures you need for the dots; these are given in thousands and in order from 1940 to 1980: 2, 3, 5, 6½, 8, 10, 12½, 15½, 19.)

2. Suppose you wanted to show this same information with a series of overlays. You will use four overlays, one for 1940, one for 1950, one for 1960, and one for 1970. You will use one figure (Δ) for every 1000 people. The first one (1940) might look like the one at the left below. Sketch out how the others might look. Remember that everything on the first one will show through the second, everything on the first and second will show through the third, and so on.

3. Perhaps you are studying related words. Prepare a list using a group such as diction, dictionary, dictate, verdict, contradict, edict. Uncover one line at a time. Discuss the parts of the word. Practice below by copying these words. Underline each root, circle each suffix and put a check above each prefix. Perhaps you can add some words to the above list.

MOTION ON THE OVERHEAD PROJECTOR

Suppose you wanted to work with a subject which required movement or motion. There are several ways of accomplishing this with an overhead projector.

1. On a transparency of a clock face, you could show time by moving the position of the hands, or on a transparency of a gymnasium floor, you could show different positions of players in a game. What might you show in social studies?

   What kind of motion or movement could be provided for music?

   What could you do with a story?

2. Another device allows you to time the presentation of words, phrases, and sentences. They could be shown at slower or faster speeds. In what subjects might you use this device?

   How would it help you?

3. Still another way of showing movement is with light-polarizing filters. These make "blinking lights" possible. These filters also can produce flowing or circling effects.

   How might you use these?

4. A particular kind of device, used in science, shows test-tube reactions. In what kinds of studies would this be valuable?

5. Some overhead projectors have a roll of acetate that can be rolled across the "stage." The roll attachment is a "lighted chalkboard," which can be turned back. What is the advantage of being able to turn it back?

Thermocopy Transparencies

The thermocopy process makes use of a high-intensity infrared lamp to copy images that absorb infrared rays. When thermocopy equipment is used, the image is literally "burned into" the transparent film (in this case, either Labelon or 3-M Color Image). The thermocopy process is extremely popular because it takes only four seconds to complete.

The thermocopy unit is designed to accommodate materials 8½-by-11 inches. However, it will accept materials up to 9 inches wide and since the materials are carried through the machine on a belt, there is really no limit to the length.

The following steps are used in making a thermocopy transparency:

1. The original, our master, can be any print, artwork, or writing that contains some carbon, which will absorb the heat of the lamp. Most print and written materials may be used with the exception of ball-point pens, felt-tip and nylon-tip markers. If preparing your own master on drafting vellum, it is best to use pencil or India ink.

2. The thermocopy film is placed over the material to be copied. One side of the film is specially-treated and is positioned into contact with the master by placing the notch in the upper right-hand corner.

3. Place the film and the master into a carrier for safe transport through the machine.

4. Set the dial on the thermocopy machine to the proper setting for the type of film that you are using.

5. Insert the carrier with the transparency film and master into the machine with the notch still in the upper right-hand corner.

6. Take carrier from the bottom of machine when it appears.

7. Use masking tape to attach transparency to frame.

8. Markers or Cut-O-Color may be used to add color to your transparency.

How to Make Contact Color Lifts for Transparency Use

1. Buy transparent (clear) Contact paper.

2. Choose a picture that has a clay base (Newsweek, Time & National Geographic are all clay-based). Test by wetting finger slightly, rub on white margin or back of page in corner. If finger appears to have a white milky look, paper is clay-based. Covers & pictures from the New Yorker are difficult to lift. They are too heavy.

3. Cut pictures neatly, then cut Contact to size.

4. Apply Contact by separating backing from transparent film. Be sure to hold it over the picture so that the adhesive faces down toward the picture and the center of the adhesive is lower. Let center of Contact meet center of picture. Then, lower one side at a time to make effective contact of both surfaces. Avoid bubbles. A second method of applying contact would be to separate end of backing sheets; apply to the picture and slowly remove the backing allowing the adhesive to adhere to the picture in a slow, steady movement. Apply light pressure as sticky portion meets picture.

5. Using some sort of burnishing tool (a hard plastic rolling pin, ruler etc.) apply pressure in all directions over the entire surface of the picture. You may want to cover the picture with the discarded backing to avoid scratches. Where you have not made good contact, you will see white spots that occur between the picture and the film. It is easier to see on darker pictures. Practising with smaller pictures will help you to become proficient in the process.

6. Allow the film and the picture to set for about five minutes.

7. Prepare a pan of warm water with a tiny bit of detergent.

8. Place picture with Contact portion down in the pan of water and allow it to set for a minute or two. You will see the water begin to soak through the paper. When it has set for awhile, lift the picture away from the Contact. If it has set long enough, it should lift easily with the entire page coming off in one easy pan.

9. Using a piece of cotton, a wet towel, or your fingers, remove the clay residue from the back of the Contact paper. It will have a milky white look to start and will get clearer as you remove the residue. It is best to do this under running water or in a pan of clear water.

10. Run both sides of the picture under water and allow to dry. If possible hang with a clothespin on a line.

11. The lift is complete. You can attach it to a piece of clear acetate by placing the acetate and the picture face up together in a pan of water. The water will allow you to move the picture around for perfect placement.

12. Remove from pan, get rid of all bubbles by rubbing from center to sides with a burnishing tool.

Sources of Materials for the Overhead Projector

Material	Description	Source
1. Plastic rolls & sheets, Reprocessed X-Ray film	Used with the following 6 items. (2-7)	Local AV dealer or Johnson Process Co. 80-88 Front Street Elizabeth, New Jersey 07206
2. Opaque marking pencils	Writes in color but projects black.	Instructo 1635 N. 55th Street Philadelphia, Pa. 19131
3. Projecto-A-Mark (felt tip pens)	Good for coloring large areas.	Marsh Company Box 388 Belleville, Il. 62222
4. Marking pens (fine tip)	Good for writing in color or underlining.	Local office supply
5. Dry transfer letters	Rub on letters for masters or clear acetate sheets.	Local office supply
6. Color sheets (nonadhesive)	To add color to large areas as an overlay.	Instructo
7. Color sheets, tapes, patterns	To add lines, patterns, or color to areas not touching an outside edge of the transparency.	Chart-Pak River Road Leeds, Ma. 01053
8. Projection carbon	Gives white writing on black background.	H. Cole Co. 80 North High Street Columbus, Ohio 43215
9. Drafton (frosted acetate)	Run through a ditto machine to make transparency.	K & E Company 300 Adams Street Hoboken, N.J. 07030
10. Infrared Film (Thermofax)	Positive-black lines on clear or tinted background, Negative-clear or colored lines on a dark background	3M Company Visual Products Div. 2501 Hudson Road St.Paul, Mm. 55101

Self Quiz on the Overhead Projector

1. The overhead projector is basically used with what type of materials?

2. Why is it wise to have two opaque marking pencils when using the overhead before a class?

3. What should you do if the projected image spills over the edge of the screen?

4. What is the minimum size of the symbols used on the overhead?

5. Give five advantages of the overhead projector over the chalkboard.

6. What type of material can be used to make a thermocopy?

7. Briefly describe what happens when you make a color lift.

8. What must be done to the color lift transparency if it has a whitish film on it?

9. How do you clean the lens and the projection stage of the overhead projector?

10. Give five suggestions to obtain maximum service from an overhead projector.

Overhead Projector Test

Note: The items below the dotted line are to be tested but are not included in the time test.

1. Placing of material on the projection surface properly..(1)_____

2. Focus.....(1)_____

3. Tilt Adjustment.....(1)_____

4. Fill up screen properly.....(1)_____

5. Removal of the power cord by the plug.....(1)_____

6. Time
   3 minutes.....(1)
   over 3 minutes.....(0)
   (1)_____

. . . . . .

7. Explain how to make a color lift.....(1)_____

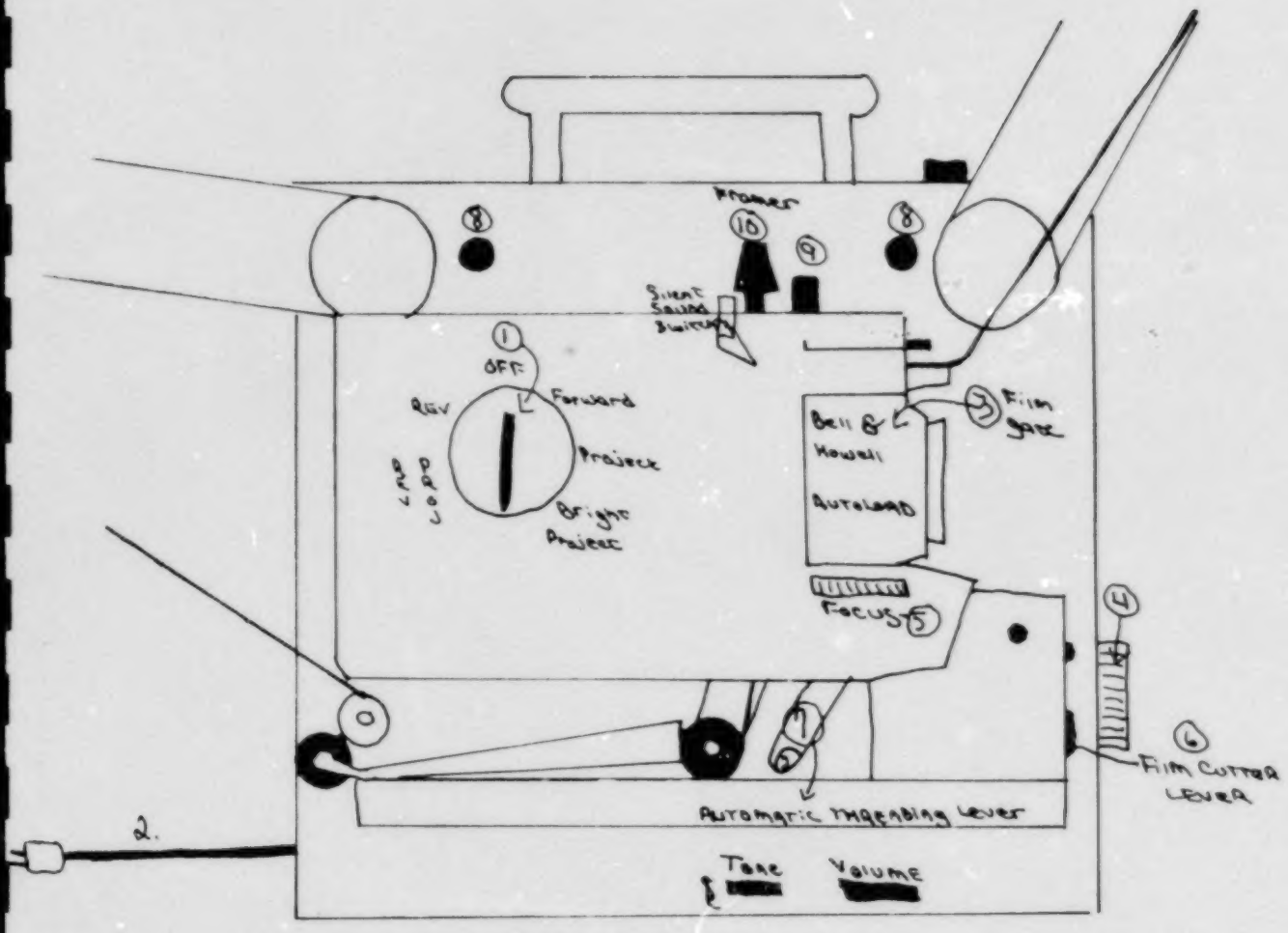
8. Explain how to make a Thermofax transparency.....(1)_____

9. Give 2 ways color can be added to a transparency.....(1)_____

10. Given a non-carbon copy how would you proceed to make a transparency on the thermofax copier?.....(1)_____

Total points (10)_____

16MM PROJECTOR



Bell & Howell 16mm Motion Picture Projector

1. Place the projector on a smooth surface.

2. Turn the projector so that the words Bell & Howell on the side panel (cover) face you. Press the cover release latches away from you, tip the cover toward you and lift it up and away from the projector.

3. Swing out the supply and take-up arms until they click into place.

4. Check that the monitor switch (1) is off and then plug the power cord (2) into an outlet.

5. Turn on the amplifier (volume control) and make a sound system check. It is necessary to place the projector on forward or reverse before the exciter lamp will light. At the end of this check leave the volume switch on.

6. Make a three-step focus check:
   a. Close the film gate (3) tightly and move the projector forward or backward until the rectangular image fills the width of the screen.
   b. Raise the projector so that the light rectangle is high on the screen. The raise mechanism is called the tilt control (4). Turn clockwise to raise.
   c. Focus the rectangle of light on the screen so that the edges are sharp; do this with the focus knob (5). A slight adjustment will be necessary when the film is placed in the projector. If you cannot focus the image on the screen, the film gate (3) probably is not closed tightly. If the lens will not turn, loosen the set screw on the lens barrel.

7. Put the supply and take-up reels into place. Remove about three feet of film from the supply reel and check that it contains no tears or foreign substances such as tape. The film will not thread through the projector unless it is in perfect condition. Be sure that the supply and take-up reels are securely in place or they will fall off during projection.

8. Insert about 2½ inches of film into the cutter located on the lower front of the machine(6). Place one of the film sprocket holes over the pin located at the cutter opening. Cut the end of the film square by pressing on the cutter lever. If for some reason the film does not cut square, cut it again.

9. Cock the autoload mechanism (7) by pressing the automatic threading lever marked on the machine with a 2 until it clicks into place. Turn the forward-reverse switch (1) to forward Push the cut end of the film into the projector under the

roller marked with a 4 until the film engages. Allow the projector to run until there is sufficient film to attach onto the take-up reel. Before attaching the film onto the reel give it a slight tug to disengage the automatic threading mechanism. Thread the film through the slot in the take-up reel. To show the film turn the forward-reverse switch to forward bright. If you experience difficulty:

a. Film came out of the top of the projector - You did not cock the autoload mechanism. Turn the forward-reverse switch to reverse to remove the film from the projector and refer to item 8.
b. Moving blur on the screen - You did not disengage the automatic threading mechanism. Stop the projector and give the film a slight tug near the take-up reel.
c. Motor runs but the projector does not move the film - Turn still-run switch to "run".
d. Projector runs too slowly - Turn the forward-reverse switch to forward and move the silent-sound switch to sound.
e. No sound - Volume switch is off or turned on low.

10. To rewind the film rotate the take-up arm into a vertical position. To move the arm press on the arm release (8) located at the right-handed side of the arm. Thread the film onto the empty supply reel so that the film travels from the bottom of one reel to the bottom of the other. Turn the forward-reverse switch to reverse and push the high speed rewind button (9).
11. To prepare the projector for storage remove the supply and take-up reels. Lower the arms against the case. To release these arms press on the arm releases located at the side of each arm. Remove the power cord from the outlet by the plug and wrap the cord around its holder on the side of the machine. Lower the tilt control by turning the knob (4) counterclockwise. Replace the cover and fasten the cover releases.

Miscellaneous Information

12. If the projector runs too slowly, causing the picture and sound to be slow, change the silent-sound switch to sound while the projector is running.

13. If the parts of more than one picture appear on the screen correct this by turning the framer (10).

14. If the projector runs noisily or a moving blur appears on the screen, you probably have lost one or more loops near the film

gate area. To correct this push on the system restorer while the projector is operating. If this fails to correct the situation it may be necessary to open the autoload cover and adjust the loops by removing additional film from the supply reel.

15. To stop the projector on a single frame turn the still-run switch to "still." This will cause a reduction of the light on the screen and a slight focus adjustment will be necessary.

16. An extension speaker can be added to this projector for larger audiences. A phono plug is required. The outlet for this speaker is located on the left end of the projector and is labeled SPKR.

Maintenance

Keep the film gate clean by using a clean cloth or small aperature brush. Caked film emulsion should be removed from film channel plate by using a wooden tooth pick.

The lens can be cleaned with a camel's hair brush, soft lint free cloth, and a drop of cleaning fluid.

Remove the power and speaker cords by the plug.

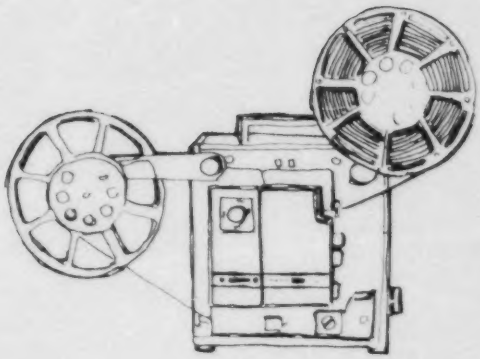
Keep the equipment covered when not in use.

Clean the film gate frequently to remove foreign material that may cause film wear.

Clean the lens after each use.

Do not move the projector until the lamp housing is cooled.

FILMS



Motion pictures have an interesting history. You may help write it. Choose your answers from the list of words at the bottom.

The first motion picture was presented in _____. Its inventor, Thomas _____, called it a "_____". Surprisingly, color began appearing in full-length films before we could hear the actors speaking. The first full-length color film was shown in _____. Later, around the year _____, silent films began to give way to _____ films. In the 1960's the film _____ made loading easier.

Films are grouped according to the width of one frame. At first all film was 35 millimeters wide, but today both _____ and _____ are popular. Modern motion pictures provide us with both _____ and _____.

sound	1894	16 mm	Edison
Kinetoscope	information	1922	8 mm
1925	entertainment	cartridge	

Below are the names of some types of films. Find the description of each kind and write its letter on the line.

_____ documentary

_____ fictional drama

_____ training

_____ travelogue

_____ factual

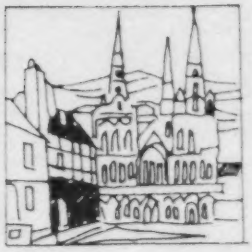
a. Usually gives the features of a place that would interest most people.

b. Shows how to develop a skill.

c. Its main purpose is to present information.

d. Gives true-to-life situations about real people.

e. Tells a made-up story about people.

F  i l m

What are some of the good and bad points about films? Complete each of the sentences below.

1. Films use more than one sense, therefore _____
2. Films move, thus _____
3. You can enjoy films even if you don't read well, because _____
4. Action is shown as it occurs, so _____
5. Showing a "speeded-up" process helps, because _____
6. On the other hand, slow motion can _____
7. Tiny objects seen through a microscope may be viewed, because _____
8. Close-ups enlarge certain parts, so you _____
9. Some films are made for smaller viewers, thus _____

A few limitations are:

1. Films move very rapidly, thus _____
2. Often the subject is complicated, so _____
3. A few films are very long, therefore _____

WHAT WOULD YOU DO?

Suppose you were the teacher and wanted to present a film to the class. At the side of the page is a list of words from which you might want to choose to get help in completing the page (you will not want to use all of the words and you probably will use other words than those in the list.)

1. First you would want to _____ the film.
2. You might take _____ or put down the _____ parts or to make an _____.
3. You would want to see that _____ materials were ready in order to _____ further or to _____ on some of the points.
4. Some of the other types of materials you could use would be:

   _____, _____, _____,

   _____, _____, _____,

   _____, _____

Once the class has seen the film, you, as their teacher, will want to know how the students liked it and what they felt they had learned. Make up a form you could give the class. Put on all the questions you can think of that would help you to evaluate the film and its usefulness.

almanacs
atlases
charts
check
detailed
excellent
globes
magazines
maps
main
notes
other
outline
paper
pencils
pictures
poor
preview
read
records
ruler
strengths
summary
supplementary
value
weaknesses

"READING" A FILM

Filmmakers have their own "bag of tricks" that they use for special purposes. Some of these are described here. After you have read about them, choose which one you might use for each of the situations described below.

1. Fade out. You are watching a scene, and it just fades away to nothing.
2. Dissolve. As one scene fades out, another fades in, so that one seems to turn into the other.
3. Close up. The entire screen is filled by a person's face or by one object or detail, just as if you were very close to it.
4. Time-lapse. A process which actually takes a long time – hours, days, perhaps even longer – seems to happen in front of you in a moment or two.
5. Slow motion. Something which actually happens very fast is shown happening slowly so you can see every detail of it.
6. Animation. Drawings (often cartoons or diagrams) move or change.
7. Subtitles. Words appear at the bottom of the screen.

Now put yourself in the place of the filmmaker. Decide which of these techniques or tricks you would use in each situation below and tell briefly how you would use it.

a. Your film is on the growth of a city. You have shown the downtown area as it looked in 1925. You will follow this with a shot from the same spot today.

_____

b. An actor is playing the part of a person who has just received tragic news. He or she is startled at first, then begins to cry.

_____

c. In a film on different types of government, you have a scene of Fidel Castro making a speech in Cuba. Naturally, he is speaking in Spanish.

_____

d. In a science film, you want to show how a flower opens.

_____

e. A scene is over, but you want to give the impression that life goes on. . . .

_____

f. You want to show what happens inside a gasoline engine.

_____

g. You want to show exactly how a diver turns in a particular kind of dive.

_____

HOW WOULD YOU USE IT?

1. A new film is being considered for use in your school. It is on the life story of Eli Whitney. It shows not only Whitney's development of the cotton gin, but also his experiments for designing tools and machinery and for manufacturing muskets (guns) using interchangeable parts.

   Teachers are thinking about using this film in several subjects. In each one, the film would be used to help put across or introduce a special kind of thing, or to accomplish some special purpose. How might the film be used in each of the following subjects? How could it be followed up to be most useful?

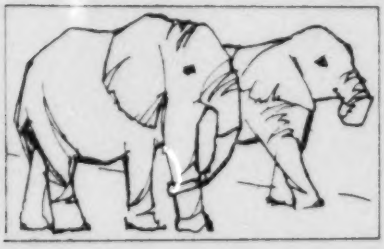
   English Composition_ _ _ _

WHAT DID YOU SEE?

Suppose you have seen a film on African animals. Among those shown were the:

lion	gazelle	ostrich	hippopotamus
zebra	impala	giraffe	antelope
eland	elephant	hyena	

Can you find each of these on the "game preserve" below? Draw a heavy black line around the letters which spell each name. They may go down or across. (SUGGESTION: find the starting letter and try spelling down or across.)



P G Q N O R S L G O P O Y G
H I P P O P O T A M U S F I
S R F N T O A S O T R T A R
G A Z E L L E O D E A R N A
R F P L G A L L I O N I A F
F F O G A S E P G X D C S F
Z E B R A N P G D H N H N E
M L F T R G H F H J F P M N
T A A I M P A L A H Y E N A
R N P O G L N A I F O G R E
O D F S A N T E L O P E K P

Now list at least three projects or ideas you might complete to follow up on a film such as this.

_ _

_ _

_ _

_ _

_ _

FOLLOWING UP

Choose from the list the study skill being illustrated by a film which:

1. Shows a boy (a) making a loom, _____ ; (b) making a scarf, _____ _____.
2. Tells what time and motion have to do with one another _____.
3. Shows the larva, molting, weaving of the cocoon, and shows the moth, _____.
4. Illustrates what happens to land if unwisely used, _____.
5. Shows distances on maps and how to interpret them, _____.

cause and effect	developmental stages	sequence
practical use	relationship	estimating

If you had seen these things in a film, how could you put them to use to get the most value from that film? (The numbers refer to the five films mentioned above.)

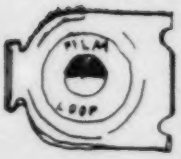
1. _____
2. _____
3. _____
4. _____
5. _____

What does the title of the page, FOLLOWING UP, indicate in relation to the film?

_____

FILM LOOPS

Read the information and answer the questions below.



Film loops are short motion pictures on 8 mm film. They usually run about four minutes. They usually deal with a simple concept, and the content is concise.

1. What does concept mean?_ _ _ _

Movie-Making Without a Camera

Movies can be made without a camera. The films can be abstract designs or pictorial sketches. In these movies, the image is manually applied to each frame of the film. The film can be clear or it can be coated with a black projecting emulsion. Locally, these films are available from Film Service Lab, 55 Berkeley Street, Boston. The film costs eight dollars ($8) for a hundred foot roll.

With the clear film, you simply draw the images with a felt-tip permanent marker and then, spray with Krylon Clear Spray to prevent smudging. Each image should be drawn on a minimum of 10 frames before proceeding to the next image; 24 frames per second are viewed with any 16mm sound motion picture projector. If you draw less than 10 frames of each image, the picture will go by too quickly to be properly seen and understood.

With the black emulsion film, you scratch patterns or images onto the film with a pen or a nail. I have found the nail to be much more effective. Be sure to scratch on the dull side of the film. Then, color in the images with felt-tip pens.

When these films are placed in an ordinary 16mm projector, the films dance and flicker with a life of their own. It is fun to accompany the playback of these films with music.

Twenty Four Activities Following a Film

1. Teacher suggested discussion: informal, non-directed, spontaneous, goal orientated.
2. View entire film again, discussion on selected scenes.
3. Written responses in the form of brief phrases.
4. Written emotional reactions or formal essay critical evaluation.
5. Group panels of ten with chairman and secretary without teacher. Report concensus of instruction to entire class.
6. Select one scene from film and discuss it in length.
7. Role playing of characters in the film.
8. Develop how all develop an idea through visualization.
9. Students keep a journal of their responses to the film.
10. Turn sound off and suggest sound track and stress visuals.
11. Record sound track and listen to it before viewing the film. Create content which is suggested by music. View film.
12. View film in parts. Stop film after major scenes or sequences. Discuss foreshadowing, style, or a scene as a microcosm of the whole film.
13. Read variety of film reviews from books, journals, magazines, and newspapers. Compare and contrast responses.
14. Lectures on styles, movements, directors, writers, genres, and actors.
15. Lectures by film critics followed by discussions. Students prepare questions.
16. Filmmakers discuss their film before the class.
17. Panel of students or teachers discuss one film.
18. Panel of students as film critics to discuss one specific film or a series.
19. Read story or script first. Discuss. View film. Compare and contrast.
20. Read story and script. Discuss.

Film Activities continued - 2

21. Distribute evaluation forms on one film or entire unit.

22. Write ideas, dialogue, or narration in similiar style, technique or form as treatment.

23. Compare with shooting script. View film.

24. Image skim. Ask students for personally significant images.

Self Quiz on the 16mm Motion Picture Projector

1. Why is there little difference from one frame to the next on a motion-picture film?

2. In what direction do both reels go when the projector is operating forward?

3. Give 2 tips on placing the supply and take-up arms in place.

4. Explain the three-step focus check.

5. What is probably wrong when the sound is poor?

6. Where is the framer located on the projector?

7. What could you do to continue the show if a film broke and you had no splicer?

8. Explain the difference between rewind and reverse.

9. What is probably wrong if the picture appears as a moving blur on the screen?

10. What is probably wrong if you cannot pre-focus the projector?

11. Why are the sprocket holes on only one side of a sound motion-picture film?

12. Give a reason why no sound is heard, assuming that the speaker is plugged into the projector and the exciter lamp is in good condition.

13. Give six tips on maintenance of the motion picture projector.

Motion-Picture Projector Test

Note: The items below the dotted line are to be tested but are not included in the time test.

1. Presound check.....(2)_____

2. Pre-focus check.....(2)_____

3. Correct threading.....(2)_____

4. Sound quality.....(2)_____

5. Rewind.....(2)_____

6. Return to storage condition.....(2)_____
   (Including disconnecting cord by plug)

7. Time
   5 minutes.....(4)
   6 minutes.....(3)
   7 minutes.....(2)
   8 minutes.....(1)
   (4)_____

. . . . . .

8. Placement of speaker.....(2)_____

9. Framer location and operation.....(2)_____

10. Stop on a single frame.....(2)_____

11. Reverse.....(2)_____

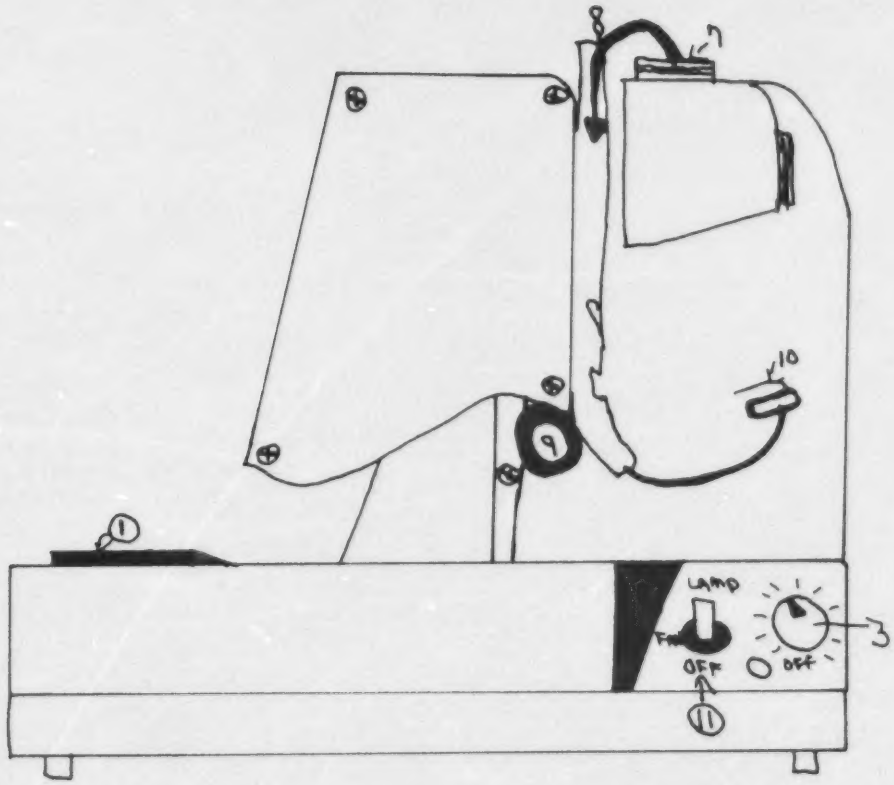
12. Reason for snapping sound.....(2)_____

13. Reason for sound out of synchronization.....(2)_____

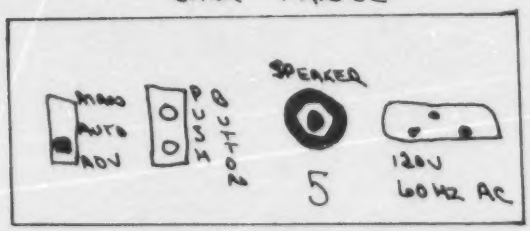
14. Reason for poor quality sound.....(2)_____

Total points (30)_____

DUKANE FILMSTRIP PROJECTOR



BACK PANEL



CASSETTE CONTROLS

REW	PLAY 6	FF	PAUSE	STOP EJECT 2

DuKane Filmstrip Projector

1. Remove cover completely by releasing latches at eiter end of case. Pull cover up.

2. Push button in the middle of the top part of the case, directly under handle. Remove power cord from side container. Plug into socket at back of machine and then, into outlet.

3. If using pre-recorded tape:
   a. Locate tape bin in back section of machine (1).
   b. Press stop/eject button (2).
   c. Insert cassette into bin with tape facing you.
   d. Push tape bin cover shut.
   e. Adjust volume with volume control (3) on right side of machine. Midway should be sufficient for most circumstances.
   f. If speaker is desired for large audience usage, plug phono jack from speaker into jack marked "speaker" (4).
   g. Set automation device for "auto" or "manual", depending on the tape being used. This device is located just below the tape bin (5).
   h. When program is ready to begin, just push play (6). REMEMBER: TAPE WILL NOT PLAY UNLESS VOLUME HAS BEEN TURNED ON.

4. Loading filmstrip:
   a. Place filmstrip in black container on top of machine. Make sure that start of filmstrip is in center and not along outside edge as is traditional with most machines.
   b. Take filmstrip from center of container, feed under silver bar and then, back over bar (7).
   c. Gently push filmstrip into the film gate (8). When filmstrip stops, continue to advance it with the advance/framer knob (9). If the filmstrip is not advancing, check to make sure that the entire film gate is not in the release position; it should be flush with the machine.
   d. Attach the end of the filmstrip to the metal clip (10) by slipping it under the clip.
   e. Turn lamp switch (11) to "lamp." Advance filmstrip to first frame. Make sure that complete fram is in view. If not, this can be fixed by pushing the outside section of the advance knob (9) toward the machine.
   f. Filmstrip is now ready to view. Use advance knob to move film if an automated tape is not being used with program.

GETTING READY

Do some analyzing before and after the showing of a filmstrip. Suppose you are about to look at one.

What do you expect or hope to learn from the showing?

1. _____

2. _____

3. _____

How have you prepared yourself? Name some things you have done as: read about the subject, looked up words suggested by the teacher, made out a list of questions you hope to have answered. Do not put down things *you* have not done.

1. _____

2. _____

3. _____

What would be the advantages of discussing a subject thoroughly before seeing a filmstrip on that subject?

1. _____

2. _____

3. _____

What might be some advantages of seeing a filmstrip *before* you discuss the subject matter?

1. _____

2. _____

3. _____

Can you think of any reasons for choosing a silent filmstrip rather than one with sound?

1. _____

2. _____

3. _____

USING FILMSTRIPS

Bruce and Tommy were having a conversation about filmstrips.

Bruce remarked, "You know, Tom, Mr. Elson suggested that we should use filmstrips to practice our thinking skills. Let's try."

"All right," Tom responded, "you be first."

Bruce: "Let's start by writing down all the different ideas we can remember and compare our lists. Then perhaps we could look at the filmstrip again to see how well we had remembered, and maybe that way we would learn some more things."

Tom: "That's a good start, but next time let's make it a bit harder by writing the main ideas and details and putting them in an outline."

Mr. Elson approved of these ideas and suggested that the following time the boys write the concepts they learned from the filmstrip.

What is a concept? _____

_____

Do as Bruce, Tom, and their classmates did. Try finding concepts in different kinds of filmstrips.

Name three concepts you found the last time a lesson was illustrated with a filmstrip.

1. _____

2. _____

3. _____

How were these concepts related to what you learned in books or in class?

_____

How was the filmstrip different from books or class discussion?

_____

What did you understand better after looking at the filmstrip?

_____

_____

Were there any problems with the filmstrip?

_____

YOU BE RESPONSIBLE

Suppose you are appointed to think of something interesting to do during a free period in the day.

"Oh," you say, "I have it." You get out an exciting story (on filmstrip) that the class has not seen, and show half of it. Then you and the other students write how you think the story will end. Write your ending here. (Use another paper if you need more space.) Make sure you bring the story to a sensible ending.

Several persons are chosen to read their endings. The rest of the filmstrip is shown.

"Now what else can we do?" you ask the class.

Carl: "Write a description of the main characters."

Wendy: "But I can't remember them. Please, may we see the filmstrip again tomorrow and do that?"

Tim: "Let's each also take down some words to add to our vocabulary notebooks as we look at the story again."

Are you ready to describe each character in the story you have chosen?

Name: _____ Description: _____

Name: _____ Description: _____

Words and Their Meanings:

PROBLEMS TO SOLVE

You will find the filmstrip projector helpful in other ways than just for showing filmstrips. Here are some problems for you to figure out. Tell how you would use the filmstrip projector to solve these problems.

1. You need to draw a map on a large piece of white paper. You saw just the map you need on a filmstrip.

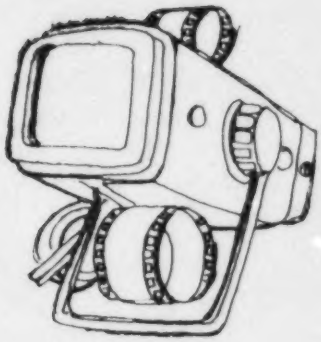
2. You forgot the flashlight you were going to bring to show how the sun lights up half of the earth (using the globe for this purpose) while the other half is in darkness.

3. Your friends have figured out a "shadow play." They have brought a big sheet to use for the curtain behind which they will perform.

4. You would like to show just the part of a filmstrip which fits your oral report.

5. If possible you would like to show a particular filmstrip, but it has no captions and no cassette or record. However, it does have an accompanying pamphlet which describes each frame.

THE HAND FILMSTRIP VIEWER



A hand viewer is a help if one wants to work with filmstrips. You are going to have a chance to read about it in code. Each letter is given a number (which doesn't change throughout the page). To start you off here are some of the numbers:

T H E H A N D F I L M S T R I P V I E W E R
5 8 14 8 3 12 15 6 4 7 2 9 5 11 4 1 17 4 14 16 14 11

You can immediately put in all of the letters for those numbers shown above. Then you figure out the rest of the puzzle.

1. 3 8 3 12 15 17 4 14 16 14 11 3 7 7 20 16 9 13 20 18 5 20 9 14 14
3 12 13 6 4 7 2 9 5 11 4 1 9 13 20 18 16 3 12 5 5 20
7 20 20 10 3 5.

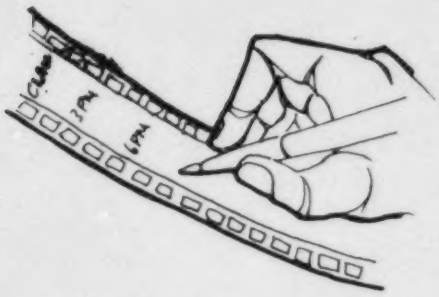
2. 13 20 18 2 3 13 11 14 17 4 14 16 3 6 4 7 2 9 5 11 4 1 13 20 18
9 3 16 4 12 21 7 3 9 9.

3. 4 6 13 20 18 16 14 11 14 3 22 9 14 12 5 13 20 18 2 3 13
9 5 4 7 7 9 14 14 5 8 14 2 3 5 14 11 4 3 7.

4. 4 6 5 8 14 6 4 7 2 9 5 11 4 1 8 3 9 9 20 18 12 15 13 20 18
2 3 13 18 9 14 3 9 2 3 7 7 21 3 9 9 14 5 5 14 20 11
11 14 21 20 11 15 1 7 3 13 14 11.

5. 16 4 5 8 3 8 3 12 15 17 4 14 16 14 11 13 20 18 2 3 13
1 11 14 17 4 14 16 2 3 5 14 11 4 3 7 5 8 3 5 13 20 18
2 4 23 8 5 7 3 5 14 11 16 3 12 5 5 20 9 8 20 16 5 20 5 8 14
21 7 3 9 9.

OTHER POSSIBILITIES WITH FILMSTRIPS



1. What do you think is being done with the filmstrip at the left?

2. Did you know that you might be creative in this way?

3. Can you think of some ways that you and your classmates might want to use such equipment to create materials? Put down five ways in which this equipment could be valuable.

   1.

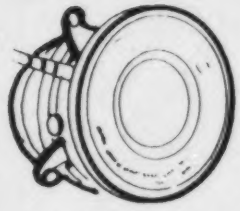
   2.

   3.

   4.

   5.

4. Would it be worthwhile to invest in this material? Why or why not?



The picture at the left shows a piece of additional equipment for a filmstrip projector. It may be used to flash words, phrases, sentences, pictures, numbers, and shapes on the screen. Also it serves in various ways for experimental laboratory work.

For what subjects do you think a device of this type is useful?

What are some ways in which you could use it to improve your performance in school?

Producing Filmstrips

A filmstrip is a length of standard 35mm film upon which a series of illustrations have been drawn or photographed. It may be in color or in black & white. Filmstrips are popular because they are inexpensive, portable, easy to use, easy to store, and provide an effective compromise between motion pictures and slides.

Filmstrips can be produced by drawing or lettering each projection area individually. The projection area or pictures on the filmstrip are called frames.

Josten's Inc. produces a kit for making your own filmstrips. The kit contains blank plastic film("U" film) that can be written or typed upon, erased and reused. Crayons, felt-tip markers, or No. 2 pencils can be used to write or draw on the film. It can be typed on just as you would type on paper. Frame lines appear on the edge of the film between the sprocket holes and serve as a guide line to art work. The marks are not visible during projection.

To use the "U" film:

1. Plan the individual frames. Layout the material in normal fashion - top to bottom, left to right.

2. Place the "U" film dull side up over a sheet of white paper on a hard working surface. Leave at least 3 frames for the leader and then, proceed to draw or letter each frame. Keep information inside the sprocket holes and frame dividers. Do not crowd your frames.

3. Use typewriter where needed. Make sure that you use a carbon ribbon for the cleanest, sharpest results. Back the film with a sheet of white paper.

Filmstrip production continued - 2

4. Allow several frames at the end to serve as a trailer.
5. Erasures can be made with soft rubber erasers.
6. Spray the final product with Krylon Clear Spray.

Filmstrip Projector Test

Note: The item below the dotted line is to be tested but it is not included in the time test.

1. Set up and show a portion of a filmstrip.....(2)_____
2. Focus filmstrip.....(1)_____
3. Frame filmstrip.....(1)_____
4. Make use of automated tape cassette.....(2)_____
5. Return filmstrip to container.....(2)_____
6. Time
   - 4 minutes.....(4)
   - 5 minutes.....(3)
   - 6 minutes.....(2)
   - 7 minutes.....(1)

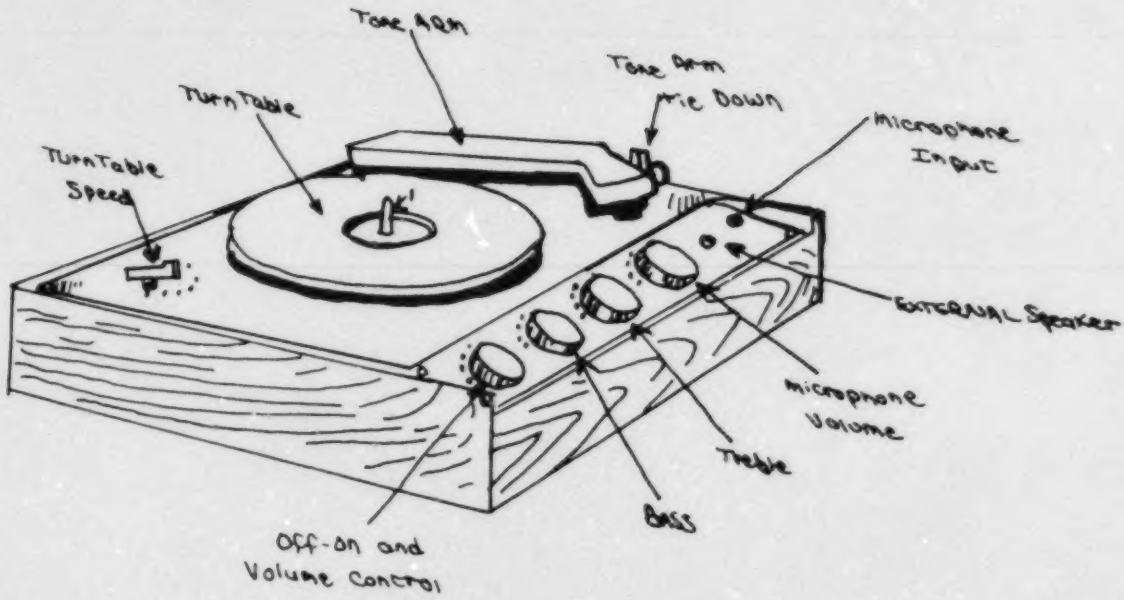
   (4)_____

. . . . . .

7. Set up a portable projection screen.....(3)_____

Total points (15)_____

RECORD PLAYER



The School Phonograph

1. Place record player on a level surface.
2. Remove cover.
3. Plug the power cord into an electrical outlet.
4. Select correct record speed.
5. Check needle to make sure that it is in the proper position: LP for 33, 45, or 15; 78 for all other records.
6. Carefully, with fingers on the edge of the record, place the record on the turntable.
7. Turn on power by moving volume and tone switches from 0 to desired level.
8. Gently lift the arm to the beginning of the record and play.
9. Adjust volume and tone to insure pleasant listening.
10. If 45 rpm record is used, raise plastic disc that is around spindle (1) post and put in place. Lower this disc for use with all other records.
11. Pack-up: Fasten tone arm securely between elastic and foam padding. Unplug, replacing cord in player. Put on cover.

Maintenance

Wipe off turntable with a soft cloth before using.

Clean needle with camel's hair brush. Needle should be replaced once each year. Indications of needle wear are: poor sound quality, record skipping, and visual signs of wear. Needles must be correct size to prevent excessive record wear.

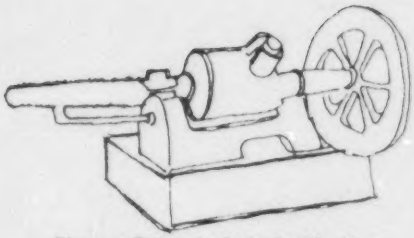
Clean recordswith a slightly moistened lint-free cloth, Filmagic cloth, or brush. Records may be washed in warm water with a small amount of detergent (Joy or Lux) by standing them on their sides, so as not to loosen the labels, (Glue it back on on if it comes off.) Dry with a soft cloth. Do not dry on or near a radiator or the sun. Put records in their dustcovers. Store in a vertical position in a place that is not too hot or humid. If it is impossible to store in a truly vertical position, then, store in a truly horizontal position.

Put all controls to an neutral or off position after use.

If a hum is hampering the record performance, this can usually be eliminated by turning the plug around in the wall socket.

Before playing a record, make sure that the record is clean, set the player for the correct speed, and check that the needle is the proper size for the record - 78 or LP.

RECORD PLAYERS



Thomas Edison's Cylinder Machine

Modern record player

Here is an opportunity to write a history of the record player, or phonograph. Use the notes provided. Look up any words whose meaning you are not sure of before you write your story.

Invented 1877 (How long ago is this?)

Inventor: Thomas A. Edison.

Original records cylindrical; made of tinfoil, then of wax.

Sound amplified by conical horn; needles were steel.

Turntable was spring-driven and wound by hand.

Later, cylinders became discs, turning at 78rpm (revolutions per minute).

Horn was replaced by tone chamber. Cactus and wooden needles were used as well as steel.

Turntable drive became electric.

Steel and wood needles and cactus spines became sapphire or diamond styluses.

Horns and tone chambers were replaced by electronic amplifiers and speakers. Since World War II records are 33 1/3 rpm in 10" and 12" sizes and 45 rpm in 7"; now made of vinyl plastic. Some records are now 16 2/3 rpm.

RECORD PLAYERS

The use of records is helpful in several subjects. Underline the word or phrase (below each sentence) which most clearly indicates that this is true.

1. A _____ selection of material is available.

   poor useless large

2. Records are not _____.

   scratchable erasable playable

3. Most people _____ how to use the record player.

   are taught do not know understand

4. The record player can often be used for _____ music for various activities.

   background dance singing

5. It is useful in music class for acquainting you with the _____ in a song.

   outline melody composer

6. The record player also is of value for literature and drama classes to illustrate the _____ of a play.

   setting costumes sound

There are also some reasons the record player may not always be desirable. Underline the word or phrase which shows that this is true.

1. Records often are not _____.

   mendable unbreakable durable

2. They may rather easily be _____.

   scratched crumbled bent

3. They provide _____ communication.

   one-way two-way excellent

4. Generally they must be _____ produced.

   school home commercially

RECORDS

Listening to records can be a great deal of fun, but sometimes it is difficult to tell *just* by the title how you might use the record or benefit from it. What would you do to discover how you could get the most from a record?

_____

Even though you can't listen on this page, try to decide for what purpose you might use the records listed below. Classify as *Information* or *Enjoyment* or *Both*. Write the title under the heading you think it fits best.

Legend of Sleepy Hollow, Davy Crockett, Knights of the Round Table, India, William Tell, Folk Heroes, Tom Sawyer, Favorite Marches, America's Presidents, Don Quixote, Nature Songs, Songs From Many Countries, Chopin—Master of Music, America's Mountain Peaks, Black Beauty, The Frozen North, Story of Lewis and Clark, Communication Satellites, Patriotic Songs, Beethoven, Songs for Holidays, George W. Carver, Our Western Indians, Famous Marches.

INFORMATION	ENJOYMENT	BOTH

If you want to be sure the record fits the information on which you are working, you should _____ before presenting it to the class.

MORE ABOUT RECORDS

How could records be used in each of the situations below?

For a blind person? _____

_____

With a silent filmstrip? _____

_____

For arithmetic? _____

_____

With a play, pantomime, or puppet show? _____

_____

In physical education class? _____

_____

In literature? _____

_____

For social studies? _____

_____

In music class? _____

_____

For science? _____

_____

In foreign language? _____

_____

With art? _____

_____

To help a foreigner learn English? _____

_____

Self Quiz on the Record Player

1. The most common speed for records used in schools is _____.

2. If a record does not play when the power is on the most likely cause is _____.

3. The correct setting on a variable speed record player is obtained when the _____ next to the record speed appear to _____.

4. Three indications of a worn needle are:

5. The needle of a school record player should be changed _____.

6. Records should be handled by the _____.

7. A dusty record can be cleaned with a _____ or washed with a _____.

8. How should records be stored?

9. A hum can sometimes be eliminated by _____.

10. Three things that should be done before playing a record are:

11. Give four suggestions on how to obtain maximum service from a record player.

Record Player Test

Note: The items below the dotted line are to be tested but are not included in the performance test.

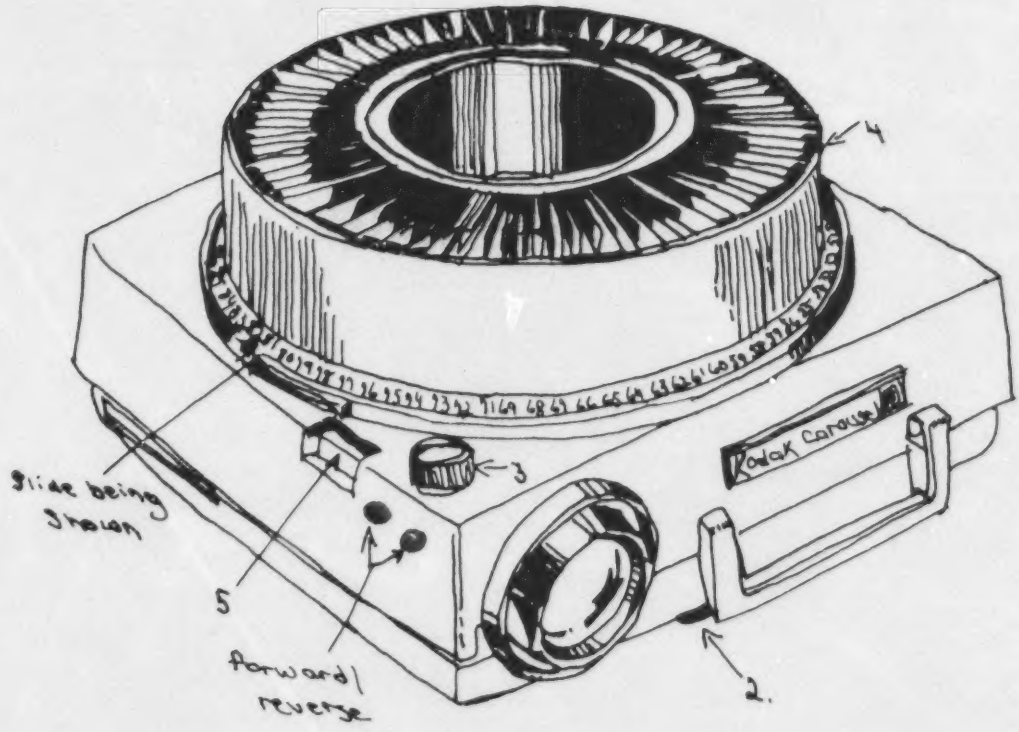
1. Handling of the record.....(1)_____
2. Placement of the needle on the record.....(1)_____
3. Speed adjustment.....(1)_____
4. Lifting the needle off the record.....(1)_____
5. Removal of the cord by the plug.....(1)_____
6. Return of the record player to storage condition.....(2)_____

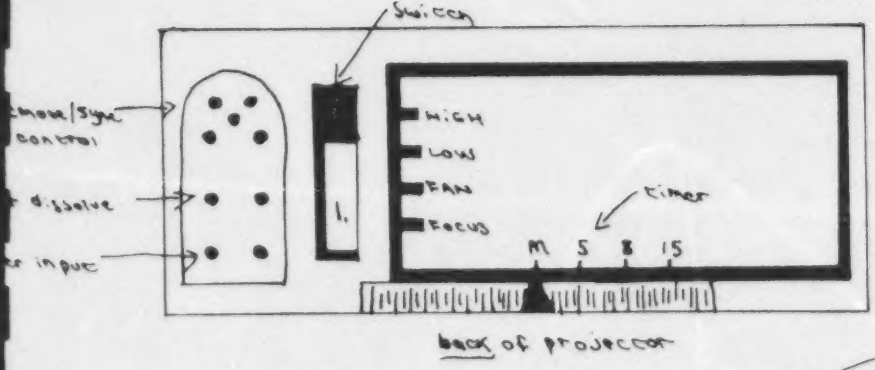
. . . . . .

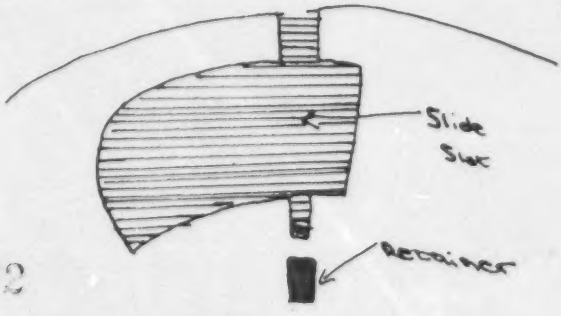
7. Explain adjustment of a stroboscopic devise.....(1)_____
8. Explain how to insert a cartridge type needle.....(1)_____
9. Explain how to clean a record.....(1)_____
10. Give two suggestions on storing records.....(2)_____
11. Explain why the correct size needle should be used.....(1)_____
12. Give two indications of a worn needle.....(2)_____

Total points.....(15)_____

KODAK SLIDE PROJECTOR







Kodak Carousel Projector

1. Turn the projector over and lay it on its top with the lens facing away from you. The power and remote control cords are stored in the compartment in the upper right hand corner. Open this compartment and remove the cords. (The projector lamp is located in the lower left corner. Do not open this door when the projector is standing on end because the lens will probably fall out and be damaged.)

2. Snap the storage compartment closed and turn the projector over to its normal position. Rotate the projector so that the lens is away from you and facing the screen.

3. Plug in the remote control cord with the red dot toward the ceiling. Plug the power cord into the projector if it is not permanently attached and then plug the other end into a power outlet.

4. Load the Carousel tray: Before loading the tray, turn it over and check that the notch opposite the slide slot is engaged in the chromeplated retainer. If it is not engaged, turn the outer ring until it snaps into place. If it is not properly engaged, the slides will fall out of the tray or the projector may jam. It is suggested that you put a blank slide in before and after your set of slides to avoid a flash of light on the screen. A blank slide can be made from a stiff piece of cardboard 2 inches by 2 inches. Slides are placed into the tray so that they look right to you and then, upside down.

5. The loaded tray is placed on the projector with zero in the 3 o'clock position.

6. Turn the power switch (1) to low. The switch is placed in this position to provide maximum bulb life. If you need more light during the course of the showing, then, turn the switch to high. Center the lighted image on the screen, raising the projector by turning the elevation wheel clockwise (2).

7. Press the forward button on the remote control unit to bring the first slide into place. If the projector advances two slides at once, you held the button down for too long a period of time. If the slides advance automatically, check the back of the projector to make sure that the timer is not turned on to a specific time such as 5, 8, or 15 seconds. It should be set at manual if you want to advance the slides at your own pace.

8. Focus the image by turning the focus knob (3). Generally you will turn this in a clockwise position.

9. If the image on the screen is tilted, turn the leveling foot (4) until this is corrected.

10. To show the slides just press the forward or the reverse button as needed.

11. After the last slide, turn the power switch (1) to fan. Rotate the tray back to zero by pressing on the select button (5). Do not attempt to remove the tray until it has been rotated to the zero position. Turn off the fan even before the housing is completely cool. Additional cooling of the projector may do more harm than good to the optical elements in the projector.

12. The elevation and leveling screws should be turned to their lowest position for easier storage.

13. The power and remote cords can easily be returned to their storage areas by carefully folding them until they fit into their storage areas.

Additional Information:

14. Emergency tray removal. To remove a tray when the slide change mechanism fails to operate, turn the tray removal screw located in the center of the top of the projector and lift the tray off carefully. Turn the tray over and adjust as explained in item 4.

15. Dissolve unit. This device allows you to gradually blend from one slide to another using two carousel projectors.

16. Automatic programs. This allows for the automatic playback of preprogrammed material. The sync cord is placed in the remote control cord's plug and attached to the tape recorder's sync jack. The slide projector and the tape recorder are simultaneously turned on and the program plays without assistance from the operator.

Maintenance

Clean the lens as for overhead projector.

Optical elements behind the lens may be cleaned with a camel's hair brush or a lens tissue. Rub gently for the lens is scratched easily.

To extend the life of the bulb, leave the projector on with a black slide in place rather than turning it off and on for short periods of time.

The body of the machine may be cleaned with a mild detergent such as Lux and a soft cloth.

Slides may be carefully cleaned with Filmagic Silicone Tissues.

Producing Slides from Thermocopy Film

A thermocopier, film (Labelon or 3M Color Image), and a typewriter are required for this process. The production steps are:

1. Trace the inner opening dimensions of a 2-X 2-inch slide mount on a sheet of typing paper. Allow margins between projection areas for mounting purposes.
2. If desired, type in the space; no more than 7 letters per line.
3. Otherwise, draw in the space with India ink or pencil.
4. Place the thermocopy film over the sheet and run it through the thermocopier. Be sure to set the thermocopier for the type of film that you are using (ie. Labelon or 3M Color Image).
5. Cut out the printed blocks from the thermocopy film and frame in 2-X 2-inch slide mounts. Color can be added by attaching colored pieces of clear acetate to the mounting.

Acetate Slides

Typing or drawing on clear acetate is one of the simplest ways to prepare slides. Materials used can be Kodak Ektagraphic Write-On Slides or an acetate material.

Once more, it is necessary to have a sheet of paper with the inner dimensions of a 2-X 2-inch slide; this serves as a guideline. Place this guideline under your acetate and draw on the film with permanent felt-tip pens. Spray the acetate with a light coating of clear plastic spray to reduce the danger of smearing the images. When dry, cut the slides out and mount in 2-X 2-inch slide mounts.

With the pre-mounted Ektagraphic Write-On Slides, just type or write-on the dull side of the slide and then, spray with the clear plastic spray.

Slide Series

A slide series may convey information, teach a skill, affect an attitude through individual study, group viewing, or television use.

Before making slides consider:

1. Have you clearly expressed your idea and limited the topic?
2. Have you stated the objectives your slide series should serve?
3. Have you considered the audience?
4. What is the content outline?
5. Did you make a treatment to help organize material and storyboard to assist in visualizing the content?
6. Is the slide series the best medium for accompanying and accomplishing the purposes?
7. Have you prepared a scene by scene script as a guide for slide making?
8. What specifications are necessary for slides?
9. Are others assisting you with the preparation of materials?

Prepare Slide Series:

1. Take pictures.
2. Process film.
3. Edit the slides.
4. Prepare slides for use.

Recording Narration:

Narration may be used in the following ways:
1. As informal comments while slides are being projected.
2. Formal reading of narration as slides are projected.
3. Recorded narration with audible signal to indicate slide change.
4. Recorded narration with sync pulse to automate slide change.

Slide Series

Creative Activities for the Classroom

Slide Making Without a Camera and Simple Slide Viewing

1. Slide making should be planned carefully for each group.
2. Work with just a few materials and explore them thoroughly.
3. Present a specific task as opposed to free exploration.

There are many ways to make slides without a camera since the materials you can use are never ending. There are several different slide mounts that are quite useful for such a project.

1. Plexiglass Mounts: Plexiglass 1/16" thick cut into 2" squares. you can buy them already cut and ready to use and can do just about everything on these slides...scratch on them with an X-Acto knife, draw on them with a grease pencil or crayon, paint on them with glass stain, glue tissue paper and other things on them...

2. Iron together slide mounts: These mounts come in many different sizes and their price varies, depending on the manufacturer. These slide mounts seal together around the edge when the heat and pressure of an iron are applied (glue will work just as well). You can put just about anything you want in between - clear and colored acetate, light weight mylar, wax paper etc.

3. Snap Shut Slide Binders: The plastic snap shut slide binders also come in various brands and sizes. They are great fun since you can put "liquidy" things inside them. Shampoo, food coloring, glue, shaving cream, tomato seeds, sugar crystals, stamps etc.

4. Kodak Ektagraphic Write-On Slides: These slides are superslide size. You can write on them with just about anything: pencil, pen, grease pencil, magic marker, etc.

5. Clark Slip In Slide Mounts: These plastic mounts come in different sizes among them 35mm and superslide size. They are closed on four sides allowing one to slip the information into the 4th side.

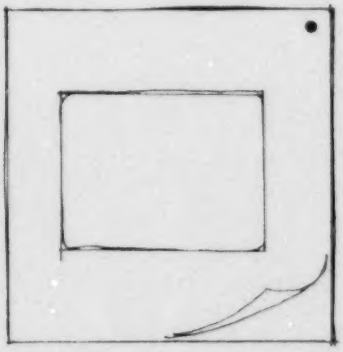
Choice of materials that you can use:

saran wrap
wax paper
scotch tape
paper towels
yarn
sugar crystals
tracing paper
netting
glue
dirt
tissue paper
cotton
plastic bags
cellophane
thread
coffee grains
masking tape
crayons
magic markers
sewing needles
hair
food coloring
clear acetate
colored acetate
lettreset
crystallizing paint
rubber cement
glass stain
feathers
hole punches

SLIDES

Almost everyone has seen a colored slide. It is a small picture that looks as if it were made of glass. In fact, we sometimes cover slides with glass for greater protection.

The word "slide" usually refers to a 2" × 2" as shown below. This is the type usually used in school and the kind provided by your 35 mm camera. There are also 3¼" × 4" lantern slides, which may now be made by a Polaroid Land camera. A microscope uses another kind (a long, thin one made of glass). We sometimes have our best slides made into pictures so we can enjoy them from day to day without using the slide projector.



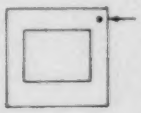
2" x 2" full frame slide in a card board mount (actual size)

Match the information on the left side with that on the right by putting the correct letter in the blank space.

__ 1. glass

__ 2.

__ 3. photographs

__ 4. 

__ 5. manual

__ 6. automatic

__ 7. remote control

__ 8. 3¼" × 4"

a. used to cover slides for protection

b. operated by hand

c. may be made from slides

d. operated without human control

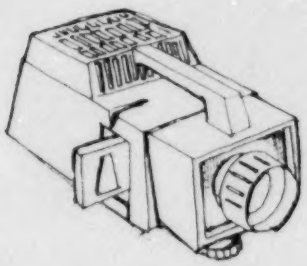
e. slide for microscope

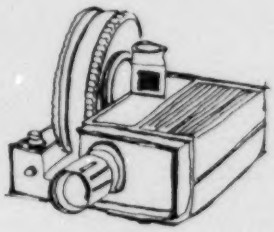
f. lantern slide

g. thumb mark (to remind you where to hold the slide)

h. operated from a distance

Two types of slide projectors that may be used for 2" × 2" slides.





WHY USE 2" x 2" SLIDES?

Fill in the blank spaces about some reasons to choose to look at slides and some reasons you might not wish to use slides. Choose a word from the list for each blank space. Answer the question.

projector	trays	particular
discarded	dimensions	filmstrips
slides	order	captions

1. Two by two slides show tiny parts in larger _____.
2. You may be able to prepare your own _____ with a little help.
3. These slides can be useful because they can be arranged to fit your _____ situation.
4. Sometimes slides may be stored in _____ which also fit into the projector.
5. If one slide in a group can no longer be used it can be _____ while still keeping the others.
6. Slides may often be shown on the same _____ as _____.
7. A problem one might have with slides is that often they get out of _____.
8. Another difficulty is that slides generally do not have _____.

What do these words mean?

Dimensions _____

Discarded _____

Captions _____

What do you think is the greatest value of slides?

_____

_____

What is the greatest difficulty with them?

_____

TRY THESE

Here are some ways for you to experiment with 2" × 2" slides.

1. Draw a time line on the chalkboard. Label the sections you have measured. Get your slides in order. As you put the slide in, focus the projector on the correct place on the time line.

   What can the class do while you are showing how these scenes fit in sequence?

2. Try using two slide projectors. On one side of the screen show a group of birds or several flowers. On the other side, while the group picture is held, show separate birds one at a time or one kind of flower at a time.

   What process are you representing when you do this?

   How may the class use this method to carry on various kinds of activities? Name at least three ways of recording or using this double set of slides.

3. Use a set of slides to give practice in sequence. How will you handle this?

4. Set up your criteria for the slides you can use for a certain unit. Write your criteria (be sure you know what this word means) here.

   Check to see that each one meets the requirements.

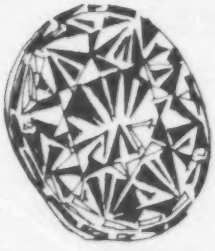
5. Use slides to show some well known story or process. Purposely leave out two or three slides. See if the class can tell which ones are missing. What are you practicing when you do this?

BEING CREATIVE WITH SLIDES

Here's how different people reacted to a slide they had seen.

1. In the sunlit field
   Flowers marching side by side
   Beautify the day.

From the slide Betty has made a _____.



2. This gem has been magnified many, many times.
   It took a man sixteen hours to cut it.
   One might call it a miniature work of art,
   as the slide picks up its beauty.

   This object is a _____.

   What words could you think of to describe it?

   _____

   _____

   _____

3. Dale looked at this slide and this is what popped into his head:

   Jack wanted a little red drum
   To summon his playmates to come;
   He got it all right,
   It was shiny and bright,
   But it made his poor parents quite numb.

   What do we call this kind of rhyme? _____

4. Now here's one for you. Try to think of something interesting to do with it.

   _____

   _____

   _____

   _____

SLIDES–FILMSTRIPS

Slides and filmstrips are often described together, as they do have likenesses, but there are also differences. Under each heading below list as many points as you can.

Likenesses	*Differences*
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Which would you be most likely to use in the following situations? Put *1* for filmstrips; *2* for slides; and *3* for either one or both.

_____ 1. You are going on a field trip and want to make a record you can see later.

_____ 2. You want something that will allow you to permanently fix the order of the showing.

_____ 3. More information is needed about a country you are studying.

_____ 4. It is preferable to have something with captions.

_____ 5. You would like to use a hand viewer.

_____ 6. Only part of the total fits your topic.

_____ 7. Your projector shows only material which has holes for sprockets.

_____ 8. You will use your family's 35mm camera to make some.

_____ 9. It is preferable to show material made by experts in the field.

Fill in the blank spaces in the sentences below.

You may show slides and filmstrips on _____ projectors, or you may have _____ projector that will show _____ of these materials. This machine is called a _____ projector. It is _____ expensive for the school to own _____ machine for both uses.

THE OPAQUE PROJECTOR

Below are listed some strengths and some limitations of this projector. Put an *S* before each strength and an *L* before each limitation.

____ 1. These projectors do not need special materials.

____ 2. Because of light loss, the projected image lacks the sharp, brilliant quality of a projected transparency.

____ 3. Since so much light must be used, the projection lamp is close to the copy and therefore may scorch the material if one is not careful.

____ 4. Opaque projectors may be used to share something in a book, pamphlet, or sheet of paper when only one copy of the material is available.

____ 5. The projector may be used to show enlarged details of a small piece such as a postcard.

____ 6. Operation of the projector is very simple.

____ 7. Moving the platen (surface upon which materials are placed) often lets through a blinding source of light which can be very distracting.

____ 8. Materials that are not of the same thickness may not be shown together unless you want them to show up unequally.

____ 9. The opaque projector does not have several complicated adjustments to be made before it can be used.

____ 10. Usually the room has to be quite dark to see the material easily.

____ 11. The opaque projector allows you to take a larger part in choosing materials to be shown for a lesson because of the large range of materials that can be shown and actually *seen* by everyone at the same time.

____ 12. This projector is often clumsy and difficult to handle.

____ 13. Many times the magnification on the projector is not very great and small print cannot be read.

____ 14. Three-dimensional objects may be used as well as flat materials.

____ 15. The projector may be used as a light source for other projects which need illumination.

16. It takes considerable space to store and it is usually not convenient to keep it in the classroom.

Slide Projector Test

Note: The items below the dotted line are to be tested but are not to be included in the time test.

1. Set up and show three slides.....(2)_____
2. Focus and elevation.....(1)_____
3. Return projector to storage conditions.....(1)_____
4. Explain how to load Carousel Slide Tray.....(1)_____
5. Remove tray from projector.....(1)_____
6. Time
   - 4 minutes.....(4)
   - 5 minutes.....(3)
   - 6 minutes.....(2)
   - 7 minutes.....(1)

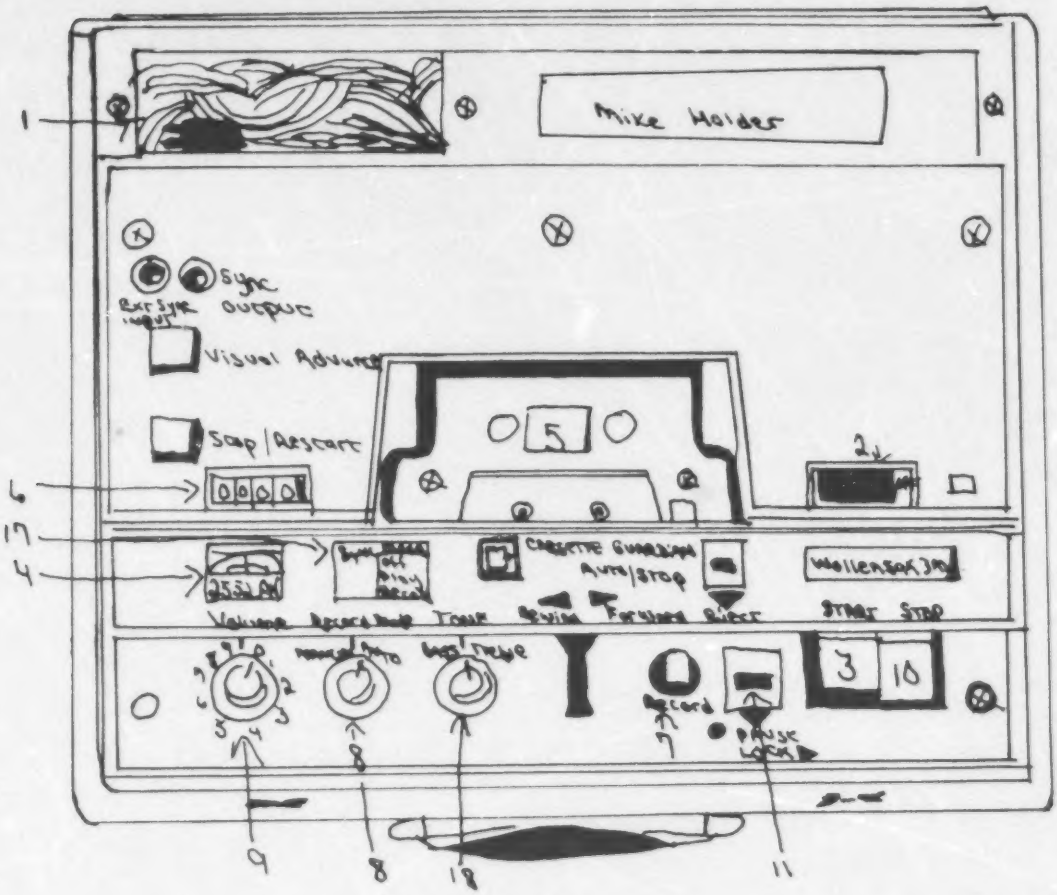
   (4)_____

... .

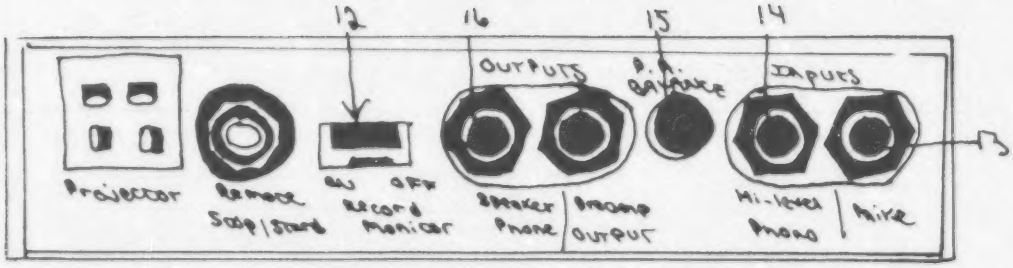
7. Explain how to get maximum life out of the bulb.....(1)_____
8. Give 2 maintenance suggestions.....(2)_____
9. Why would the projector jam?.....(1)_____
10. Explain how to make a slide.....(1)_____

Total points (15)_____

WOLLENSAK 2552 TAPE RECORDER



Left Side



The Wollensak Cassette Guardian Tape Recorder

1. Remove the cover by pulling the silver latches, on either side of the handle, toward you.

2. Plug in the power cord (1) which is located in the upper left-hand corner of the machine.

3. Turn on the power by sliding the power switch (2) to the right. When the power is "on", the red indicator will be lit. You can also check by pressing the start button (3) and observing the vu-meter (4). The pointer in the vu-meter should come to rest in the silver area. If the pointer does not move, check your power cord and the outlet.

4. Set the tape recorder on a level surface.

5. Snap tape cassette into cassette platform (5). To assure proper operation, cassettes must be pushed all the way onto the spindles. A safety lock prevents removal of the cassette while the unit is operating.

6. Set the counter (6) at 000 by pushing down the small button to the left of the counter.

7. To record, push and hold in record button (7) while pushing in start button (3). Be sure that tape is past leader before recording.

8. If record mode (8) is set to "auto", no adjustment of recording level is required as proper level is set automatically. If recording in "manual" mode, adjust volume control (9) so that vu-meter (4) indicates correct recording level. Pointer should be in mid-range of meter, never in the red.

9. When finished recording, push stop button (10). Recording circuit is automatically disconnected.

10. If only audio programs are being recorded, without use of sync features, you may also record on side 2 of cassette.

NOTE: To preset recording level before taping (when using manual record mode), advance tape to point where recording is to begin. Then, push in record and start buttons to activate recording circuit, at same time placing unit in pause lock (11) mode. This id done by pulling lever and moving to right until it locks. After setting level, release pause control, by sliding lever to left, and begin recording.

Monitoring: To monitor recording through recorder's speaker or headphones, place record monitor switch (12) in "on" position. This switch is located on the left-side of the machine.

Automatic Erasure: Whenever recorder is in the record mode, any audio signal previously recorded on the tape is automatically erased as the tape advances when the new recording is made.

Recording from Microphone: Insert microphone plug firmly into mike input jack (13). Any connection to the hi-level (phono) input (14) may remain, as a connection to the mike input automatically disconnects the hi-level (phono) input. To prevent acoustic feedback to the microphone, which causes "squealing" and "howling", turn down the P.A. balance control (15) and turn off speaker by placing record monitor switch (12) in off position. To monitor a microphone recording, connect headphones to the speaker/phone output (16) and place record monitor switch in "on" position.
NOTE: All of these hookups are located on the left side of the machine.

Tips on Microphone Recording: For best results in recording, hold the microphone about 8-10 inches away from your mouth and talk in your normal voice level. Do not speak directly into the microphone, but past it. This will reduce the "puff" sounds in explosives like "p" and the hisssing sounds in sibilants like "s". Avoid handling the microphone or cord unnecessarily while recording to prevent unwanted noise. Place your script on a reading stand so that you do not have to lower your head. Avoid placing the microphone on the same table as the recorder or any other sound source, as it may pick up unwanted vibrations. Always turn off fans, air-conditioners, or other apparatus that produce noises that can be picked up by the microphone. The Wollensak microphone has a low impedance output, thus long extension cables may be used without loss of sound quality.

Recording from Another Tape Recorder or a Record Player: Connect the preamp output (preferable) or the speaker output of the playback machine to the hi-level (phono) input of the Wollensak (14) tape recorder, using the appropriate patch cord. Adjust volume of the playback machine to normal listening level. When copying tapes with musical content use "manual" record mode (8). Use of "auto" record mode may alter the dynamic range of the original sound and is not recommended.

Playback:

1. Make desired playback hook-up as explained in the next section.
2. Turn on unit with on-off switch.
3. Insert cassette. Set index counter (6) to 000, if tape is fully rewound.
4. If audio program is recorded on both sides, place sync mode switch (17) in "off" position.

5. Push start button to begin playback.

6. Adjust volume (9) and tone (18) controls for desired sound.

7. When finished, push the stop button to stop tape.

Playback of Stereo Cassettes: Prerecorded stereo cassettes may be played back monophonically with full compatibility. The ½-track mono play head simultaneously reproduces both tracks of the stereo signal on the tape.

P.A.Commentary: The built-in P.A. feature allows you to make a "live" microphone commentary, either with or without tape playback. During tape playback adjust volume control (9) for desired level. Connect the microphone to the mike input (13) and while talking into the microphone adjust the P.A. balance (15) so that your voice and the tape are in the desired balance. Once this adjustment is made, use the regular volume control (9) to change overall volume. To interrupt tape playback for spot commentary, place unit in pause or stop mode and it will operate as a public address system. If the P.A. feature is desired without tape playback, turn P.A. balance control half way and use the regular volume control to adjust output level.

Playback through Headphones: Insert phone plug into speaker/phone output jack (16) jack. Control volume and tone with unit's controls.

Maintenance

Do not use or store the recorder in areas of excessively high temperatures.

Do not clean the recorder cabinet with solvents or thinners. Use a soft cloth moistened with a detergent such as Lux.

To clean the recording and erasing heads, press the start button and use a cotton swab slightly moistened with alcohol to wipe off the heads. Now push the stop button to retract the rubber drive wheel from the capstan. Clean the capstan with the alcohol-moistened swab; avoid getting any alcohol on the rubber drive wheel. CAUTION: Use only alcohol in the cleaning of the heads and capstan, as other cleaning fluids may harm the head assembly. Never touch the heads with a sharp object, too stiff a brush, or anything containing metal.

For optimum results, tapes should be stored and played at normal room temperatures, avoiding extremes of heat, cold, and humidity.

Sync Pulse Recording Procedure for the Wollensak Tape Recorder

1. Make your audio recording, using side 1 of the cassette, as described in the section on recording. Rewind tape to starting point.

2. OPTIONAL: If you wish to view the slides as you record the sync pulses, connect the remote control input of the slide projector to the projector output jack(19), using the appropriate Wollensak synchronizing cable. Place slides in the projector in the desired order.

3. Place recorder in sync record mode by holding the sync mode switch (17)in record position while pressing start button (3). DO NOT PRESS WHITE AUDIO RECORD BUTTON. As in audio recording, any previously recorded signals on the sync track will be erased as the tape advances.

4. As the program is heard, press the visual advance button (20) whenever you want the visuals to change. This records a 1 kHz visual advance pulse on the sync track of the tape at that point. At each pulse the projector, if connected, will automatically advance the visual, assuring you that sound and visuals are in perfect synchronization. Additionally, the visual advance button will light up and the signals will be heard from the speaker.

5. Rewind the tape and, if a projector hookup was used, return slides to starting point. Sync mode switch (17) automatically returns to play position if either stop button is pressed or rewind/forward lever is used. This interlock prevents accidental erasure of pulses.

Synchronized Playback:

1. Make desired audio playback connection. Connect remote control input of projector to projector output (19) of unit.

2. Insert cassette and rewind to beginning. Make sure that visuals are also at beginning.

3. Set sync mode switch (17) to play. Press start button. As tape plays, visuals will automatically advance at each pulsed signal on the tape. The visual advance button will light up at each pulse.

NOTE: Full protection against accidental erasure of sync and audio tracks is readily provided by breaking off BOTH cassette record safety tabs.

Wollensak Reel-to-Reel Tape Recorder

1. Remove the cover by pressing the center latch in and pulling the cover up and away from the machine.

2. Set tape recorder on a level surface.

3. Plug cord into and electrical outlet and turn on the power switch (1).

4. Feed tape from left reel to empty right reel with shiny surface toward you, securing tape by making small loop that fits in groove at center of reel. Thread the tape through recording slot at front of sound head (2) through guide posts and pressure pads.

5. Plug the microphone into the microphone or input jack (3). Talk into the microphone and adjust the volume control until the record level indicator flickers. If the level indicator (4) fails to light, check that you plugged the microphone into the input jack completely.

6. Set knob to $7\frac{1}{2}$ ips (inches of tape used per second) or 3 3/4 ips. The fast speed is generally used for music and the slow speed for speaking.

7. Set the counter (5) at 000 by pushing the small button to the left of the counter.

8. Push the forward lever to the right until the counter reads 025 so that you will have a little bit of leader before your program for cueing purposes (ie. finding your place on the tape.)

9. Stop machine by returning lever to center position of play/ reverse switch (6).

10. Turn loudness knob up, approximately half way while recording. If you turn the knob higher than this, you can possibly pick up undesirable machine noise. It is better to have original sources turned up high as they will not transmit as much machine noise as a tape recorder turned up too high.

11. Monitor your recording levels while taping by making sure that the vu-meter (7) does not go past the half way mark. If your recording is much higher than this, you may throw your bass or treble levels off when you playback. Even though your recording will be fairly loud, you can regulate the sound after taping to insure pleasurable listening.

12. Push record and forward buttons at same time.

13. Rest microphone in some sort of stand (a box will do) about 6-9 inches below the mouth, and record.

14. Pause button (8) may be used to stop for a few seconds while taping.

15. When finished recording, push stop button. Take note of number on the counter (5).

16. Rewind to 025 on the counter by pushing forward/reverse lever toward reverse. Stop.

17. Push play/forward levers for replay. Adjust treble, bass, and loudness to desired level.

18. Pack-up: Unplug mike and replace in cover of machine, unplug power cord; place inside of machine and replace cover.

Maintenance

Run a tape through the recorder once every six months to keep the tape heads fairly clean. If the heads are dirty and this does not help, then take a Q-Tip and some alcohol. With these, gently clean the tape heads. Use a lint free cloth to dust off the machine.

Store in room or closet with even humidity.

Reel boxes should be stored in a vertical position.

RECORDS AND THINKING SKILLS

Just below are listed some thinking processes you might use with activities using the record player. On the line following each activity, write the skills which you think might fit, using the list of skills below.

checking performance	finding unclear terms	sequence
checking structure	finding propaganda	summarizing
comparing	Does it fit your purpose?	using other means

1. Listen to a record of an historical event. When you have finished, put down the ideas in condensed form. _____

2. Hear plays recorded by well-known actors and actresses. Listen carefully to their pronunciation. Then record your own reading of those lines on the tape recorder. _____

3. Play a disc which tells you how to do an activity. After you have turned off the machine, write down the steps in order. Check yourself by playing again. _____

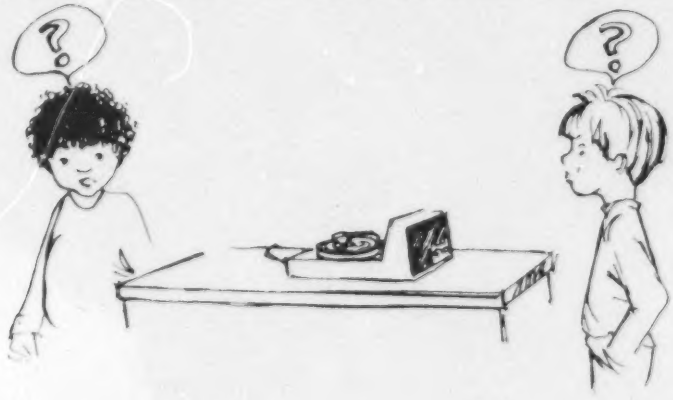
4. Listen to political speeches to try to discover the means the speakers use to try to persuade people. _____

5. Use a record which is made to improve your command of language. See if you can tell which sentences could mean more than one thing. _____

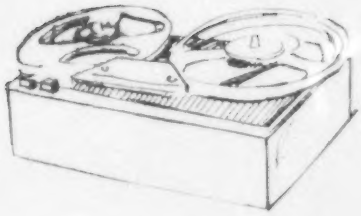
6. Listen to stories and poems to see if you can find their basic parts, like plot, characters, any message in the stories; and pattern, themes, rhymes, etc. in poetry. _____

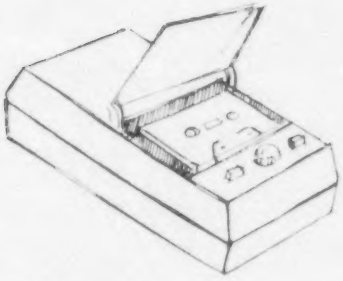
7. Play several records that might fit a topic you are going to report on. Decide which one fits best. If none of them works well, figure out something else you might use. _____

8. Play several records dealing with the same topic to see which one has a style that pleases you most. _____



TAPE RECORDER





Learning about tape recorders may involve becoming acquainted with some new words. From the list of words defined and pronounced, pick the correct one for each blank space and write it there.

audio (o'di o): of or having to do with sound

acetate (as'ə tat): short for cellulose acetate, used in making the base for some recording tapes.

cassette (ka set'): a small tape cartridge containing a reel of tape and a "take up" reel.

input (in'put): information in the form of electric currents put into a recorder or amplifier.

microphone (mi'krə fon'): instrument for converting sound into electric currents.

monophonic (mon'ə fon'ik): recorded on one channel: contrasted with stereophonic, which uses two or more channels.

polyester (pol'i es'tər): any of various plastics, as mylar, used in making molded parts or as the base for some recording tapes.

reel (rel) spool, roller

stereophonic (ster'i ə fon'ik) having or rendering the illusion of having a natural distribution of sources of sound, through use of two or more recording channels or tracks.

1. Tape recorders in school often use two _____, a supply one and an empty one on which the tape must be threaded (top picture). A _____, however, needs only to be inserted.
2. The tape itself is made of _____ or _____.
3. As you record, the previous message is erased.
4. _____ to a tape recorder may be from a _____ or directly from a phonograph, a radio, or another _____ device.
5. For classrooms most tape is _____.
6. When two channels are recorded at the same time from separate microphones, the tape is _____.
7. Microphones may be uni-, bi-, or multi-directional. This means that the sound may be recorded from one, two, or many directions.
   Which kind would you probably choose to record a speech? _____
   Which kind would probably be best for recording a group discussion?

MORE ABOUT TAPE RECORDERS AND RECORDING

Answer the questions following this paragraph by underlining the answers in the paragraph and placing a circled number as (1), (2), etc. by the answer. The answer must have the same number as the question.

In addition to one, two, four, and eight track tapes on regular and cassette recorders, there are special purpose recorders. One type contains pre-recorded material of a certain length. This material is repeated a pre-set number of times. Another type permits the student to record, push a button and immediately hear his voice. Yet another kind allows both student and teacher to record sounds on a special tape-striped card. Many variations of the main pattern are found in language laboratories.

1. What is the main topic of this paragraph?
2. When both student and teacher record, on what kind of material may they do this?
3. What does the student do to hear his voice on a special type of recorder?
4. In what special place are many varieties of recordings found?
5. What happens when a particular recorder has material of a certain length?

Recording is usually done with a microphone. However, a tape may be made directly from a radio, television, phonograph, or other recorder. This involves using a patch cord and also having the proper output and input connections. Using a direct connection practically eliminates outside noises which might spoil your tape.

Now follow the same procedure for these questions.

1. What is used when a direct connection is made between the tape recorder and other audio devices?
2. What advantage is there in using this type of connection?
3. What is used for most tape recording?

USING THE TAPE RECORDER

As you become acquainted with reasons to use or not use the tape recorder, match the first part of the sentence with the last part by placing the correct letter on the line before each beginning. Then circle the numbers of the statements that indicate limitations of the tape recorder.

____ 1. Tape recorders permit you to	a. you can tape record his part so that a group report won't be spoiled.
____ 2. Because you can hear your voice you can tell if	b. erase the tape accidentally.
____ 3. Reports can be put on tape and	c. your voice is too squeaky, if there are slurred sounds, or if you need to correct mispronounced words.
____ 4. You may record your reading, speech, or whatever you wish to check;	d. for two-way communication.
____ 5. If someone has to be absent	e. played back for improvement before being given before the class.
____ 6. You can tape record material from the radio or TV to	f. of pre-recorded material available.
____ 7. An interview may be presented to the class	g. illustrate something you are studying.
____ 8. The tape recorder may be used	h. hear yourself as others hear you.
____ 9. Without the proper kind of microphone	i. then two or three months later, you can recheck to see how you are progressing.
____ 10. It is easy to	j. you cannot record at great distances or in several directions.
____ 11. There is not a very large amount	k. by use of the tape recorder.

The next two lines are for you to put down additional strengths or limitations of the tape recorder.

HELPING WITH LISTENING

The tape recorder can help you learn to *listen.* Even though you may think you already know **how, there** is a difference between having sounds strike your ears and really knowing what was said. As a starter, which of these sounds might you hear and to which might you listen? Write each under the proper heading.

It's recess time.	There'll be a test tomorrow.	The puppet show is next.
Time for dinner.	Time to do your homework.	Time for bed.
No more TV.	Gym is next.	Just redo that paper.
The party is Friday.	No written assignment.	Your report card is due tomorrow.

Hear	*Listen*

Do you always get your assignments straight? _____ If you do, fine, but if you need help, listen to tapes to aid in developing your ability to *really* listen, and comprehend what is said.

Write down some ideas to accomplish this by using the tape recorder. (If you need help, do some research or work with your classmates and/or teacher.)

_____

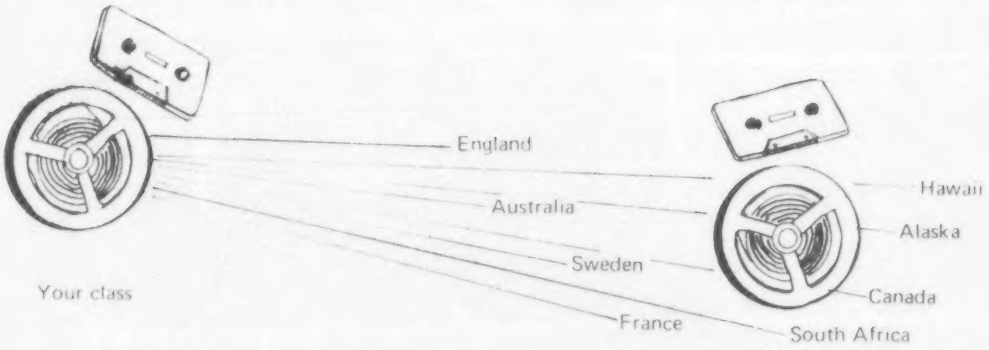
_____

_____

_____

Now try out one or more of these ideas and see if you really have improved your listening skills.

EXPANDING YOUR HORIZONS WITH TAPE



An exciting use of tape involves exchanging a tape you have made in class with another group in this country or with classrooms in other countries.

What advantages are there to this use of tape?

_ _ _ _

MORE WAYS TO BENEFIT FROM THE TAPE RECORDER

1. The tape recorder is useful in improving reading. Suggest how this could be accomplished. Then see if others in your class have additional ideas on the use of the tape recorder for reading.

2. What is choral speaking? _____
   How would tape recording help here?

3. Perhaps you would like to help a foreign student, who is not in your room, to learn English better. What could you do with tape?

4. Maybe you are not as good at taking spelling dictation as you should be. What could you, with the help of the tape recorder, do about it?

5. Suppose you have some interesting silent filmstrips in social studies. What could you do, by using the tape recorder, to add sound?

6. Can you figure out how you can work with the tape recorder and practice synonyms and antonyms? You would be practicing reading (on the original list), listening, writing, and spelling.

BRANCHING OUT

Here are some things for you to try and an opportunity for you to work out some ideas of your own.

1. Listen to tapes of several stories and tell if each is *real* or *fanciful*. Be sure to take down some phrases that will prove your answer. Then rerun the tapes and _ _ _

BROADCASTING

Some school systems or groups of school systems have radio broadcasting stations. Suppose you and some of your classmates are directors of a broadcast. Grades one through six will be involved. To which grade would you assign each of the following:

		Grade
_____	News Report	_____
_____	Weather Report	_____
_____	Editorial	_____
_____	Commercials	_____
_____	Sports Report	_____

Number the above in the order in which they should appear on the program.

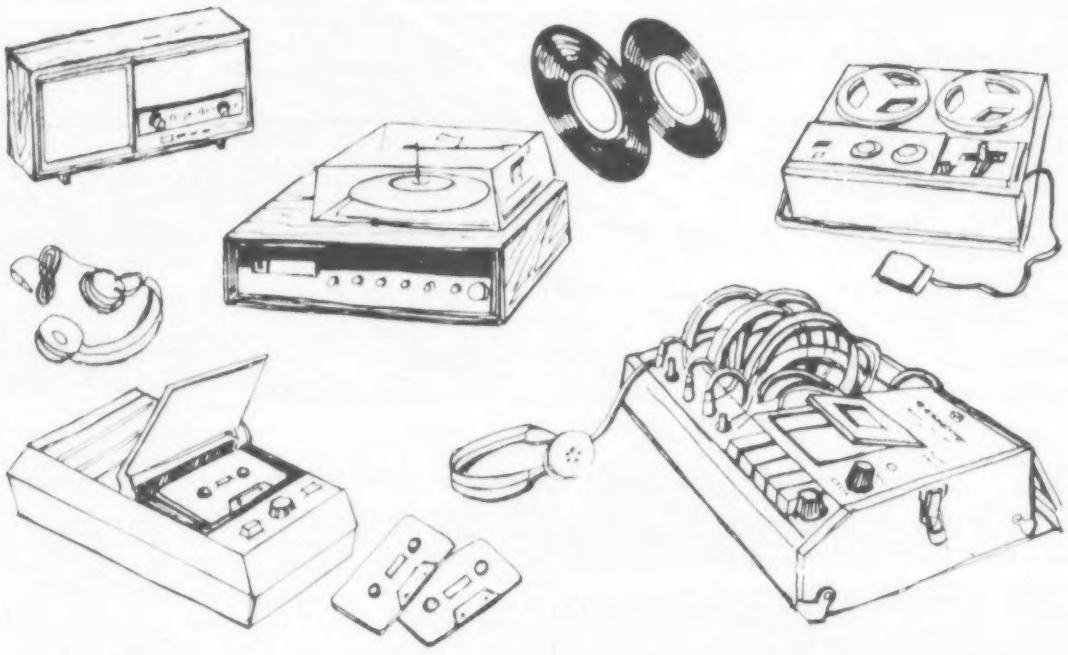
If you listen to a broadcast, it may help you to plan this page.

Your program will last 15 minutes. Plan your schedule below.

	Topic	*Grade*	*Time*
1.			
2.			
3.			
4.			
5.			
6.			

Select one of the above. Write an outline of what you would say in a broadcast.

THE LISTENING CENTER



A listening center in a classroom, library, materials center, or other place gives you an opportunity to listen with headphones while others are listening to other materials or even engaged in other activities. Such a listening station might use the machines and equipment shown here. Fill in the blanks below with appropriate words.

1. Suppose you were listening to musical multiplication discs. The machine you would be using would be the _____ and the subject on which you were working would be _____.
2. Using the same machine you might want to hear the voices of men who have been important in our past. Now you have switched to the subject _____.
3. Audio books are also on discs and include titles such as *Treasure Island, Alice in Wonderland,* etc. You can use this type of material in which subject or subjects? _____
4. Nearly all of the Social Studies are also represented on discs (as the Landmark series.) The books in this latter series may be used with the _____ and either _____ or _____ may be viewed.
5. One may listen without disturbing others by using _____. More than one _____ may be used with many _____.

Self Quiz on the Tape Recorder

1. Where is the off-on switch on the tape recorder usually located?

2. What are the two speed settings on a tape recorder for?

3. Give one reason why a tape might break.

4. Of what value is the position indicator?

5. On which side of the tape is the recording made? How many different recordings can be made on the same side of a tape using a standard tape recorder?

6. A tape recorder is usually threaded from the _____ side to _____ side with the dull side of the tape facing the head.

7. What is the use of the automatic cutoff device?

8. How do you erase a tape recording?

9. What is a patch cord?

10. What is a level indicator?

11. A microphone is held _____ inches from the mouth.

12. Where is the headset plugged into the tape recorder?

13. Explain briefly how picture-sound synchronizers work.

14. Give a feature of a cassette.

15. Give two tips on how to obtain maximum life from a tape recorder.

Tape Recorder Test

Note: The items below the dotted line are not included in the time test.

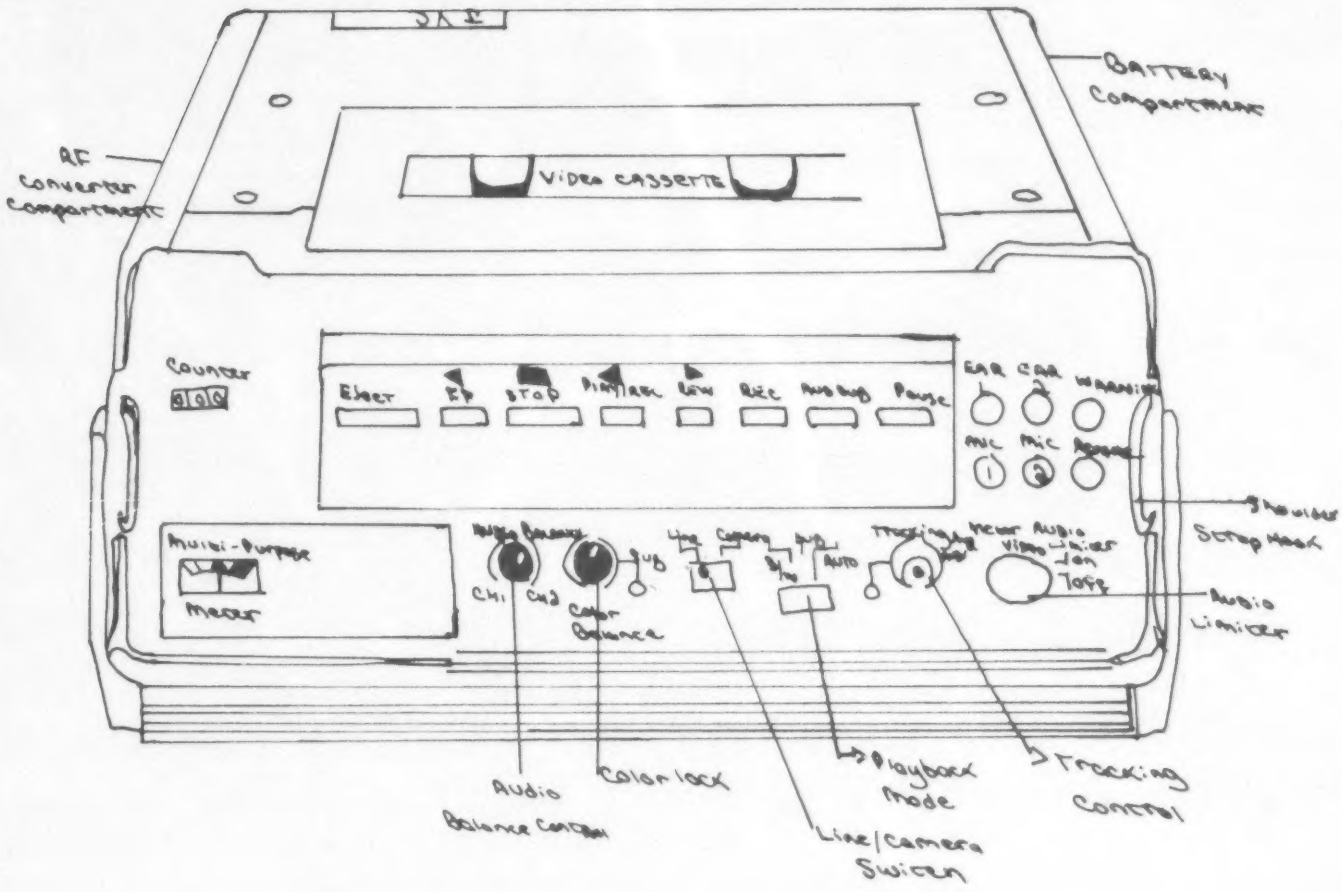
1. Voice recording quality.....(1)_____
2. Recording from a tape recorder or record player.....(1)_____
3. Erasing a tape.....(1)_____
4. Use of pause control.....(1)_____
5. Use of headset.....(1)_____
6. Removal of power cord & mike cord by plug.....(1)_____
7. Return to storage conditions.....(1)_____
8. Time
   5 minutes.....(2)
   over 5 minutes.....(0)
   (2)_____

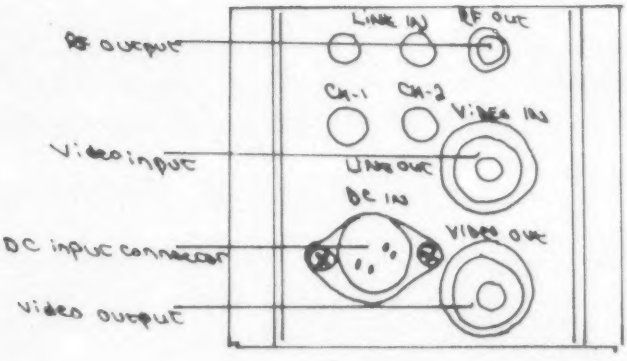
. . . . . .

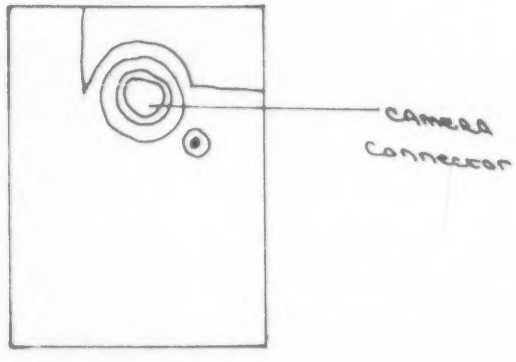
9. Explain how to put more than one track on a tape.....(1)_____
10. Reason for tape breakage.....(1)_____
11. Explain how to use a patch cord.....(1)_____
12. Explain how to sync a tape.....(2)_____
13. Explain how to care for a tape recorder.....(1)_____

Total points.(15)_____

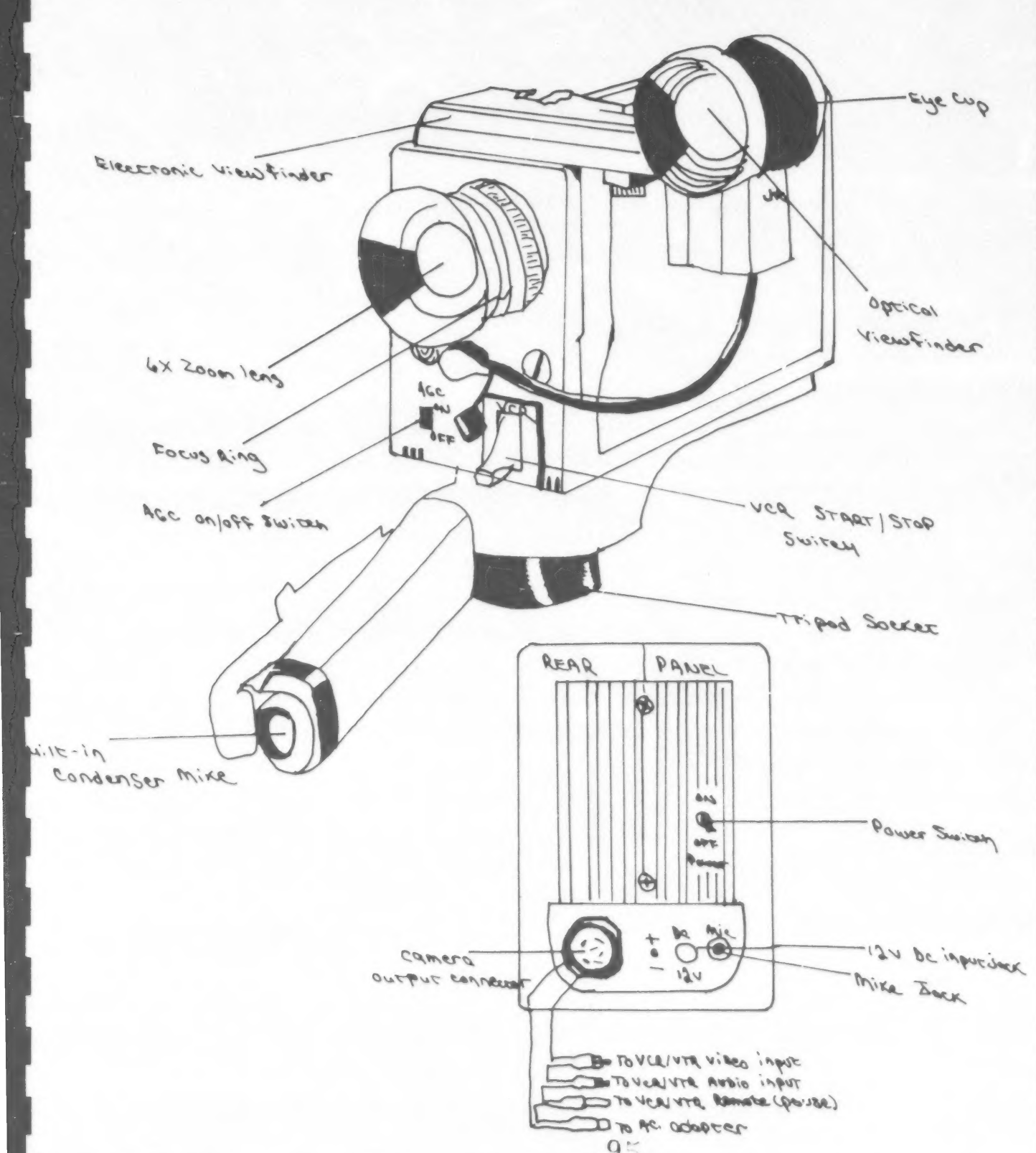
VIDEO CASSETTE RECORDER







JVC VIDEO CAMERA



Guides and Tips for Using Portable Video Equipment

1. Plugs and cords should be properly and carefully connected (and removed).

2. Never aim the camera at a light source or a reflection of a light source. (Even a match can damage the camera.)

3. When the camera is not in use, leave the lens cap on.

4. Do not run the video tape recorder when the battery meter is in the red, you will damage the equipment.

5. Cassettes and reels should always be placed with labels face up. Rewind each tape after use and return it to the proper storage container.

6. Do not push the function lever directly from REWIND to FF (FAST FORWARD). Always return to the STOP position first to allow for motor adjustments.

7. Video tape records in only one direction. Do not flip over.

8. The VTR works best in a horizontal position.

9. It's a good idea to make a test tape (1 minute), when you are ready to record, to make sure that everything is functioning and set up properly. The picture should look clear and stable in the camera viewfinder during record and playback.

10. DO NOT repair the equipment yourself.

Setting Up the JVC Color Video System

1. When using the battery, connect the cable from the battery pack to the receptacle (12 V DC INPUT JACK) on the back of the VCR. This connection is keyed - with proper alignment, the plug will go in easily - do not twist or wiggle!

2. If the AC Power Adapter is being used, connect the cable from the VCR Power Switch marked "to AC adapter" to the AC Power Adapter.

3. Make sure the power adapter is off before inserting the AC cord into a wall outlet. Turn on the AC Power Adapter - the light will indicate that it is on.

4. The camera (JVC G-31 US/ G-71 US) has one power switch in the rear. This has 4 cable connectors branching from it. These must be inserted into the proper receptacles as marked:
   a. Furthest to the right goes from the VCR to the VTR video input.
   b. Second to the right goes from the VCR to the VTR audio input.
   c. The third goes from the VCR to the VTR remote pause control jack.
   d. The one on the left goes from the VCR to the AC adapter when the adapter is being used.

5. These cables fit only one way. Do not jiggle, twist, or force the plugs. They will go in easily if properly aligned.

Operating the JVC Color Video System

RECORDING:

1. Check to see that all wiring connections have been properly made.

2. Insert the video cassette (label up) into the VTR by pushing the EJECT BUTTON on the back of the VTR to release the TAPE BIN. Make sure that the cassette is fully secure and locked firmly into the spindles.

3. Place the CAMERA SWITCH "on". It is located on the VTR - rear.

4. Push the RECORD/PLAY lever "on" and hold it there while pushing the PAUSE/STILL lever "on".

5. The VTR is now in standby. The tape should not be moving. If it is, either: the camera is on - turn it off- or the RECRD lever popped back - rewind and try again, or it is alive!

6. Wait for the VTR to warm up. Have your shot set up and focused before turning the camera on.

7. Push in the Automatic Aperture Control to activate the automatic iris control circuit. It is built into the zoom lens and

provides correct exposure under most lighting conditions. For manual override, pull out and turn to adjust.

8. Turn the START switch "on". Always glance at the VTR to make sure that the tape is moving (the switch or tape may jam).

9. When finished, turn the camera "off" with the START/STOP switch.

10. Push the VTR STOP button.

11. To rewind, wait until the video heads stop spinning (whirring sound). Then push the REWIND button.

PLAYBACK:

Through the Camera:

1. The select switch on the VTR should be on CAMERA.

2. For sound, plug earphone into EAR-1 on back of VTR.

3. After rewinding, put the function button FORWARD "on". The recorded picture will appear in the viewfinder of the camera.

Through a TV:

1. Select the playback mode.

2. Connect an RF cable from the RF OUTPUT JACK of the VTR to the VHF terminals of the TV monitor.

3. If you are using an RF cable with an Antenna/VTR switch, put the switch in the VTR position.

4. Tune the TV to whatever channel the RF unit is tuned for (usually 3 or 4).

5. Put the VTR in FORWARD motion.

Through TV Monitor:

1. A ten pin connector cable is necessary. Plug the cable from the VTR output into the ten pin receptacle in the back of the TV monitor.

2. Select the playback mode.

3. Place the VTR in FORWARD position.

Script Preparation

The preparation of a good script is very important because it is the script which provides the crucial element of organization in the video production. A well written script will enable all members of the production crew to know exactly what is going to happen and when.

A good format for script consists of three parts: the storyboard, video, and audio.

The storyboard consists of a series of thumbnail sketches which depict the different camera shots in succession.

The video section describes each camera shot and includes any special instructions to the switcher and camera operators. The following may be included:

Camera shots:

1. CU - close-up - usually shows a person's head and shoulders.
2. XCU - extreme close-up - shows a smaller area, ie. eyes only
3. MS - medium shot - usually shows a person from the waist up
4. LS - long shot - usually shows the entire person

Camera Movement and zooms:

1. zoom in - adjust the zoom lens so that the subject is brought into closer view
2. zoom out - adjust the zoom lens so that the subject appears farther away
3. tilt up or down - move the camera head vertically either up or down
4. pan right or left - move the camera head horizontally, either right or left
5. dolly in or out - move the camera and tripod either toward the subject (in) or away from the subject (out).
6. truck left or right - move the camera and tripod either to the right or the left.

Switching:

1. take - to change quickly from one camera's image to another camera's image
2. dissolve - to change slowly from one camera's image to another's (as one image fades out, the other fades in)
3. super - to superimpose one image over another
4. fade in - to slowly bring in a picture from a black screen (usually the opening shot in a production)

5. fade out - slowly decrease the image until the screen is black (usually the closing shot in a production)
6. wipe - to make it appear that one image is "pushing" another image off the screen

The audio section describes what will be heard throughout the production. It includes instructions to the audio person as well as a transcript of any dialogue. Instructions might include the following terms:

1. fade in theme - gradually increase the volume of any music used (from silence to the desired level)
2. fade out theme - gradually decrease the volume of music until it's inaudible
3. fade theme under - decrease volume of music to background level
4. open talent mike - if an audio mixer is being used, this instruction means to turn up the talent's microphone from off
5. close talent mike - turn down the volume completely on the talent's microphone
6. roll theme - start up record player or audio tape player with volume off (this gives the theme time to get up to speed)

AUDIO TIPS

1. While the internal microphone in the camera is fairly sensitive, it is often necessry to use an external mike to obtain good sound quality.
2. Plug the microphone cord into MIC on the VTR. This will cut off the internal mike in the camera and eliminate recording camara noises such as the clicking which results from turning the camera on and off.
3. It's a good idea to bring an earphone for an on-the-spot check of audio track.
4. The MIC input is for mikes - not record players, tape decks etc.
5. It is generally easier to use an audio cassette player than a record player when you dub sound onto a videotape.
6. A rule of thumb for placement of microphone. Put your thumb by your mouth. Spread your hand apart. Put the mike by your little finger. The mike is now the proper distance away from your mouth.
7. AGC = automatic gain control and it automatically adjusts the level of the audio track. It does magnify soft sounds and lower loud sounds. It also increases the level of background noise.

TELEVISION

Television is one of the bits of magic in our lives. Here are some TV facts you may not know.

1. The first attempt to send pictures by wire was in 1884, which was _____ years ago!
2. In 1887 the photo-electric effect was discovered. This convinced inventors that pictures could be made with the help of electricity.
3. In 1941 the government drew up a code for television broadcasting.
4. By 1946 there were six television stations offering programs in the United States.
5. The first TV debate by presidential candidates was held between John F. Kennedy and Richard M. Nixon in 1960.
6. In 1962, the satellite Telstar enabled TV stations to send pictures across the oceans.
7. By 1966 there were over 750 TV stations in this country.

Now fill in the time line to show the developments.

1880 1890 1900 1910 1920 1930 1940 1950 1960 1970

Educational television has been carried on for several years. In 1952 the government set up 242 channels for educational use. Since then other channels have been added.

Have you had any experience with educational television either on (1) special programs in school or (2) in listening to those on regular television at home? _____

If your answer is *yes*, what educational programs have you seen? (if your answer is *no*, are there any you would especially like to see?)

_____

_____

_____

WHY USE TELEVISION?

Help Kevin complete his letter telling his friend why television may be valuable in furthering one's education or why it might not be helpful.

Dear Clyde,

I have been assigned the job of supervising the committee which is finding out reasons to use or not use _____ in our assignments. We decided it was valuable because it uses two senses, _____ and _____. The educational television programs are usually put on by teachers _____ trained to do this work. Regular programs often use people who are _____ in their field. Someone suggested that when we see important news events on television we are seeing _____ being made. Others noted that one could take an entire _____ on television. We also decided that television was helpful because it could be used at school or _____. If the program came on at the wrong time, it could be used at a later time by video tape. Another thing, most people already know how to _____ a television.

There really are not so many reasons for not using _____. Of course, your school _____ have one, so you could not see special programs during school hours. Also if no _____ were available, the programs shown at an inconvenient time could not be video taped. Then, too, the programs might not fit your _____ level.

I hope that you have found this presentation interesting.

Your friend,

Kevin

Did Kevin's committee do a good job of giving strengths and limitations of television?_____

What could you add to his letter?

_____

TELEVISION JARGON

Television, like many other things, has a special jargon, or talk, all its own. Some of this jargon is given here. Fill in the spaces so that you will become familiar with it.

coaxial cable — one used to carry telephone, radio and television signals simultaneously.

contrast — relation of black and white on the television screen.

dolly in, dolly out — move the camera toward the subject or away from it.

ETV — educational television.

monitor — a receiver in the television station for showing the program in progress.

pan — the slow movement of a camera to right or left.

tilt — swing camera up or down.

VTR — video tape recorder which records both audio and video parts for replay at a later date.

1. A general term for television designed to teach, in the broadest sense of the word, is _____. These initials stand for _____.
2. The camera is pointed at the bottom of a ladder. Then it swings to the top of the ladder. The cameraman is _____ing the camera.
3. A senator is speaking to a committee. The camera shows the faces of each member of the committee as it _____s from one to another.
4. A teacher presents a lesson in a television studio, and it is recorded for future use by the _____, which stands for _____.
5. A program is sent from Boston to Los Angeles on a _____ cable.
6. In the station, the crew watches the program in progress on a _____.
7. If dark tones look grey on your screen, you can adjust the _____ to make the black tones stand out against the white background.
8. As you watch a person speak, you get the impression you are coming closer and closer to her. This is because the camera is _____ed in to her.

KINDS OF TELEVISION IN SCHOOLS

Look at this outline. Then answer the questions below it.

I. Closed-circuit

A. Internal single classroom use

1. Teacher or student demonstrates before class

2. Viewers watch on monitors

B. Multiple classroom use in one school

1. One teacher provides instruction for several classrooms in one grade

2. Other teachers work with students not involved in program

II. Broadcast (open-circuit)

A. Programs on commercial television sponsored by companies or groups

B. Special ETV stations

C. Regular programs on commercial television that can be adapted to school use

1. What are the two kinds of television broadcasting? _____

_____

2. In which kind can the general public see educational programs? _____

3. In which kind might the student be more likely to perform? _____

4. Which type can be seen at home? _____

5. What type of program is referred to in IIB above? Name one you have seen, if possible.

_____

6. What types of programs would come under IIC above? _____

_____

7. In team teaching what type of television is used? _____

EXPANDING THE USE OF TELEVISION

On this page are some encounters with television programs.

1. Your class has just seen a television program sponsored by a company that sells products to control insects. The program showed the characteristics of several kinds of insects. Underline the skills which you might now use.

   illustrate (draw), pick out main characters, describe, categorize, judge, discuss, compare, list, summarize

2. In music class, a television presentation of folk dances of the Soviet Union interested many members of the class. Which activities listed under *one* above would be appropriate here?

   _____

3. An optical company sponsored a demonstration of simple and compound microscopes and showed the structure of these scientific tools. Underline the activities below which would be appropriate for follow-up.

   construct a model, sketch the parts and check with a science book, buy a microscope, send to the company for more information, have a class project on microscopes and view prepared slides.

4. You have seen a presentation at home on television by the National Geographic Society discussing the Arctic in winter and including the adaptations of animal and plant life. Underline the three subjects for which this program might be of most value.

   Geography, History, Biology, Literature, Botany

   How might you follow up in school after viewing this program?

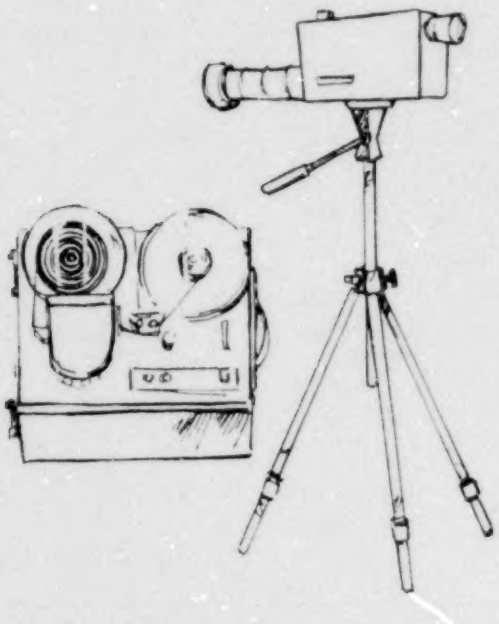
   _____

   _____

   _____

VIDEO-TAPE

Most of us have seen a movie camera. It takes pictures that can be shown on a moving-picture projector. Television can be used in much the same way to play back filmed activities on a television screen. Instant replays of football games are made possible through the use of television cameras and video-tape machines.



Here is some information on video-taping, but it is in scrambled order. Rewrite the letters on the lines below in proper order.

a. Record a demonstration which you want to re-use.

b. Since video-tape does not cost as much as it once did, many schools can afford it (especially black-and-white).

c. Finally, if your school has a closed-circuit system, you may be asked to put on programs.

d. Video-tape your play to help improve your acting.

e. First, notice that "video-tape" means tape used to record pictures and sound on TV programs.

f. Video-tape the classroom's performance and discuss the results.

g. Black-and-white may be used in school to: (sentences 5-8).

h. Next, we find that video-tape is no longer so expensive.

i. Then you may want to make your own program.

j. Get permission to record a commercial TV program for later use.

_ _ _ _

Video Recorder Test

Note: The items below the dotted line are to be tested but are not included in the time test.

1. Connect camera and battery cables to VTR.....(2)_____
2. Set VTR up to record.....(1)_____
3. Set VCR up for production.....(1)_____
4. Tape one minute of a production.....(1)_____
5. Turn VTR and VCR off.....(1)_____
6. Hook VTR up for playback.....(2)_____
7. Playback your video taping on TV or monitor.....(2)_____

. . . . . .

8. Why is a script important in video production?.....(1)_____
9. What is the best way to record a speaker when taping?...(1)_____
10. How far should a mike be from a person's mouth?.....(1)_____
11. How can music be recorded for a video production?.....(1)_____
12. What should never be done to the cables?.....(1)_____

13. Time for top portion:

10 minutes.....(10)
12 minutes.....(8)
14 minutes.....(6)
16 minutes.....(4)
18 minutes.....(2)

.....(10)_____

Total points (25)_____

EFFECTIVENESS OF INSTRUCTIONAL MEDIA IN RELATIONSHIP TO TYPES OF LEARNING

TYPES OF LEARNING	INSTRUCTIONAL MEDIA									
	Still Pictures	Graphics	Motion Pictures	Television	Printed Text	Programmed Text	3-D Objects	Audio Recordings	Oral Interaction	Trainers Simulators
Learning Factual Information	Average	Low	Average	Average	Average	Average	Low	Average	Average	Average
Learning to Make Identifications	High	Low	High	High	Low	Average	High	Low	Low	High
Learning to Make Perceptual Discriminations	High	Low	High	High	Low	Low	High	High	Low	High
Learning to Follow Procedural Sequences	Average	Average	High	High	Average	High	Average	Average	Average	High
Learning Principles and Relationships	Average	Average	High	High	Average	Average	Average	Low	Average	High
Learning to Make Decisions and Solve Problems	Low	Low	Average	Average	Low	Low	Average	Low	Average	High
Learning to Perform Motor Skill Actions	Low	Low	Low	Low	Low	Low	Average	Low	Low	High
Developing Desirable Attitudes, Opinions, or Motivations	Low	Low	Average	Average	Average	Average	Low	Average	Average	Low

SERVICE TEST

Designed For ATC Course Use. Do Not Use On The Job.

Instructor Training Division
Sheppard AFB, Texas

HO #2 3AZR75000-X-I-1
1 October 1974

GLOSSARY OF AUDIO-VISUAL TERMS

The purpose of this handout is to provide you with one of the most current and complete listings of audio-visual terms in existence today. This glossary contains terms and definitions representing the entire gamut of the audio-visual medium. Upon graduation from the Audio-Visual Methods Course you may be required to fill the role of an audio-visual materials designer, developer, producer, user or resource center supervisor. Your professionalism in these areas can only be enhanced by being fully conversant in the "terms-of-the-trade"; this handout will assist you in just that.

Supersedes ATC HO 3AZR75000-X-1-2, 3 May 1974

GLOSSARY OF TERMS

ACCENT LIGHT	A spotlight which accentuates and highlights a person or an object in a scene.
ACETATE (CLEAR)	A plastic sheet permitting a high degree of light transmission, resulting in a transparent appearance.
ACETATE (COATED OR TREATED)	A clear-appearing plastic sheet to each side of which a special coating has been applied; the coating will accept ordinary drawing inks.
ACETATE (MATTE OR FROSTED)	A plastic sheet with one side etched or roughed so as to take regular drawing inks and colored pencil markings easily.
ACOUSTICS	A science that deals with the production, control, reception and effects of sound. The sum of the qualities that determine the value of an auditorium, classroom or other enclosure as to distinct hearing.
AFFECTIVE	Relating to attitudes and appreciations.
ANIMATION	A filming technique that brings to apparent life and movement inanimate objects or drawings.
ANSWER PRINT	The first duplicate copy of an audio-visual material (slides, filmstrip, of motion picture) made from the original, with exposure corrections and special effects added.
ASPECT RATIO	A numerical ratio involving height and width. The normal 35mm slide ratio is 2.3, two units high by three units wide. The normal TV aspect ration is 3.4, three units high by four units wide. Any photographs, title cards, graphics, etc, should adhere to this ratio.
AUDIO-CUED LEARNING	Causing learning to take place on the part of the student in response to pre-recorded audio instructions. Sometimes referred to as "talk throughs".
AUDIO MIXER	An electronic device that permits the mixing to two or more different program sources into a single composite output signal. Audio mixers are extremely useful when adding music and sound effects over the narrators voice.

AUDIO-VISUAL PROGRAM	A presentation using tape and slides, filmstrips, motion pictures or television as the media, and contains as many principles of programmed instruction as possible: For example, information is presented in pre-determined steps, students are directed to work an exercise or respond to that information, and then they are made aware of their progress.
AUTOMATIC EXPOSURE CONTROL	A device within some cameras that couples a builtin light meter directly to the lense diaphragm. This causes the camera to automatically and instantaneously compensate for changes in lighting conditions.
AUTOMATIC RECORDING LEVEL	A function incorporated within some recorders that senses sound intensity and automatically adjust the recording amplifier gain to level out extremely loud or soft recording input information. This control defeats the manual recording volume function.
AUXILIARY INPUT	An input connection on a tape recorder or amplifier that accepts relatively high level input, such as that directly from a loudspeaker or loudspeaker output of another amplifier.
BACKGROUND LIGHT	The illumination thrown on the background to lighten it, giving the scene depth and separating the subject from the background.
BEADED SCREEN	Projection screen surface coated with fine glass beads causing increased brilliance of the reflective image. Most effective viewing angle from center projection line is 25°.
BEHAVIOR	Any activity by the student either covert or overt.
BETWEEN-THE-LENSE SHUTTER	Camera shutter placed between the lense on dual lense cameras or just behind the lense on single lense cameras. This type shutter may be held open for preliminary focusing during close up photography.
BRANCHING	An instructional technique usually in the form of a programmed text where the student's next step of instruction is determined by his response to a previous step.
CABLE RELEASE	Flexible extension that allows remote control of a camera shutter. Use of a cable release reduces camera movement during exposure. Extremely useful during closeup time exposures.

CAPSTAN	Precision machined shaft that operates in conjunction with a pressure roller to pull recording tape past the heads of a tape recorder. Failure of this shaft to rotate at a constant speed causes "wow" and "flutter" in the playback sound.
CAPTIONS	The printed explanations to accompany the visuals of an audio-visual program.
CATV	Community Antenna Television (Cable TV)
CARREL	A specially designed facility that provides a suitable learning environment for individual instruction. Usually equipped with hardware to support a multimedia approach to instruction.
CASSETTE	A light easy to use video or audio recording tape and container assembly. Audio cassette tapes are available pre-recorded or blank in 15, 20, 30, and 60 minutes per side. Video cassette tapes are available pre-recorded or blank also. Video cassette tapes are normally 20,40, and 60 minutes in length.
CHAINING	A sequential form of behavior in which one response provides the cue or stimulus for the next, usually employed in programmed instruction.
CLIP BOOKS	Printed booklets containing a variety of commercially prepared black-and-white drawings on various subjects.
CLOSE-UP	A concentration of the camera on the subject, or a part of it, excluding everything else from view.
COAXIAL CABLE	Cable that consists of a tube of electrically conducting material surrounding a central conductor held in place by insulators. This type cable is used for microphone and patch connection to amplifier high impedence inputs to reduce audio hum.
COGNITIVE	Knowledge information.
COLORED ADHESIVE	A translucent or transparent color printed on a thin acetate sheet having adhesive backing for adherence to cardboard, paper, acetate, or film.
COMMUNICATIONS SPECIALIST	A person having broad knowledge of audio-visual media and capable of organizing the content of audio-visual materials to be produced so that the stated purpose will best be served.

COMPATABILITY	The ability of one component to interface mechanically and electronically with another.
COMPRESSED SPEECH	Shortest comprehensible form; produced by speech recording that has all pauses removed, and by removing redundant or unnecessary words or parts of words. Also time duration between words is greatly reduced.
COMPUTER ASSISTED INSTRUCTION	Units of instruction or major segments of the curriculum stored in a computer where the student can interact through a typewriter keyboard, or a video display unit with the material.
COMPUTER MANAGED INSTRUCTION	A concept in education that is based on the student's characteristics file, responses and progress, which is fed into a computer. It then prescribes lessons, provides for automated testing and predicts completion and graduation dates.
CONFIRMATION	Giving each student knowledge of results on every student exercise throughout the instructional process. The principle underlying confirmation is reinforcement or rewarding of student achievement during the entire learning situation, and the immediate correction of incorrect responses.
CONFORMING	The process of matching original motion picture footage to the edited workprint.
CONTACT PRINT	A photographic print the same size as the negative, prepared by exposing light to the negative and positive films (or contact papter), placed together.
CONTINUITY	The logical relationship of one scene leading to the next one and the smooth flow of action and narration within the total audio-visual program.
CONTINUOUS-TONE SUBJECTS	Illustrations consisting of shades of gray, varying from black to white.
COPY STAND	A vertical or horizontal stand for accurately positioning a camera when photographing subjects very close to the lense.
COVERT BEHAVIOR	Responses which can not be directly observed such as thoughts, feelings, glandular reactions, etc.

CREDIT TITLE	A listing of those who participated in or cooperated with the audio-visual project.
CRITERION OBJECTIVE	A statement that describes what the student must know or do upon completion of a unit of instruction. A well written criterion objective consists of three recognizable characteristics; performance or behavior, condition and standard.
CROPPING FRAME	Simple inexpensive adjustable mask used for photographic copy work.
C R T	Cathode Ray Tube. Picture tube in a television monitor.
CUEING	Signal required for synchronization of audio and visual information. The cueing signal consists of an audible beep superimposed on the audio which requres manual advance of the visual, or an unheard signal placed on channel B of a dual channel tape. The latter process advances the visuals automatically.
CUT-AWAY SHOT	A motion picture scene of a subject or action taking place at the same time as the main action, but separate from it, and placed between two related scenes which have a discontinuity of action.
CUT-IN SHOT	A close-up feature of a subject being filmed as a motion picture and usually placed between two scenes having a discontinuity of action.
DECIBEL	A unit for measuring the relative loudness of sound, equal approximately to the smallest degree of difference of loudness ordinarily detectable by the human ear whose range includes about 130 decibels on a scale beginning with 1 for the faintest audible sound.
DE-GAUSS	To de-magnetize, as when the magnetic pattern is erased from a medium such as a vidio tape or audio tape.
DEPTH OF FIELD	The distance within a scene from the point closest to the camera in focus to the furthest in focus.
DEVELOPER	A solution in which the chemicals set the image by acting upon silver salts on exposed film that have been affected by light during picture taking.

DIAL ACCESS SYSTEM	A learning resources center configuration employing learning carrells equipped with earphones, TV monitors and telephone dials. Individual students may dial the desired audio or audio-visual lesson from the carrel. The desired lesson is automatically selected and piped to that particular carrel.
DIAZO PROCESS	A method for preparing overhead transparencies requiring film containing one of a possible number of dye colors, which is exposed in contact with a translucent original, to ultraviolet light, and then developed in ammonia vapor.
DIFFUSION-TRANSFER PROCESS	A method for preparing overhead transparencies requiring the exposure to light of negative paper placed against the original material, then development of the negative in contact with a sheet of positive film in a photographic chemical solution.
DISCRIMINATION	The ability to choose between two closely related responses to a specific stimulus.
DISSOLVE	An optical effect in motion pictures involving two superimposed scenes in which the second gradually appears as the first gradually disappears.
DISTORTION (SOUND)	Break up of sound causing unpleasantness to the listener. Distortion is usually caused by overdriving an amplifier or speaker, or recording through the improper input jack. Distortion is also caused by component failure.
DOCUMENTARY APPROACH	A method of taking pictures without pre-planning or detailed script prepaaration.
DOUBLE-FRAME FILMSTRIP	A series of pictures aligned lengthwise along 35mm film, each double frame being 24 x 36mm, also having an aspect ratio of 2 x 3.
DUAL TRACK	Dual track (half track) monophonic, the type of recorder is most common in schools. On these machines it is possible to make two separate recordings on each reel of tape or cassette. The first track is recorded on the upper half of the tape, the second track on the lower half.
DUBBING	To provide with a new sound track. To add sound effects To transpose sound (already recorded) to another recording. Usually accomplished through an audio mixer and patch cables.

EDGE NUMBER	A series of matching numbers printed at 1-foot intervals along the edge of original motion picture footage and also along the workprint edge so that after the editing the original and workprint can be matched together.
EDITING	The selection and organization of visuals after filming and the refinement of narration and captions.
ELECTRONIC MIXER	A control mechanism through which a number of sound-producing units can be fed in order to combine voices, music, or sound effects at desired recording levels onto a single tape or film.
ELECTRONSTATIC DUPLICATION	Use of coated, electronically charged, light sensitive paper or film to reproduce original and printed pages.
ESTABLISHING SHOT	A medium or long shot that establishes the whereabouts of a scene and serves as orientation to action photographed at close range.
ETV	Educational Television. Non-commerical broadcast television consisting primarily of educational and informative programming. These stations normally operate on various grants for funding.
EXCITER LAMP	Small, low wattage light bulb placed within the sound drum of an optic sound movie projector. Exciter light flows through the optic sound track on the film striking a photo electric cell. The output of the photo electric cell is amplified providing the audio portion of the film.
EXPOSURE INDEX	A number assigned to a film by the manufacturer which indicates the relative emulsion speed of the film for determining camera settings (f/number and shutter speed).
EXPOSURE VALUE SYSTEM (EV)	A series of numbers for setting exposures by a single number which represents combinations of f/number and shutter speed, and which will vary depending on the exposure index of each film.
EXTENSION TUBE OR BELLOWS	A device that allows the normal camera lense to be used for taking extreme close-up pictures. Tubes and bellows of this type can be used only on cameras which accommodate interchangeable lenses. These devices also require increased exposure time.

f STOP	Aperture opening number on a camera lense. The larger the f stop number, the smaller the aperture opening.
FADE-IN	An optical effect in motion pictures in which a scene gradually appears out of blackness.
FADE-OUT	An optical effect in motion pictures in which a scene gradually disappears into blackness.
FADER, DISSOLVER, OR FLIPPER	Electronic device for the control of two slide projectors. The fader or flipper allows each projector to complete its slide change cycle in the dark while the other visual is on the screen. The instantaneous change from one visual to the next is attention holding and also shortens the overall presentation considerably.
FADING (non visual)	The technique of gradually removing the teaching point of information in a programmed sequence to the point that the student is required to perform the desired behavior without any assistance.
FEEDBACK	Information obtained from the student which may be used in adapting or revising instruction.
FILL LIGHT	The secondary light source illuminating a scene which brightens dark shadow portions created by the key light.
FILM CHAIN	The part of a television system which includes the slide and motion picture projectors connected optically to a television camera.
FILM CLIP	A brief filmed sequence used generally on television without having titles or special effects.
FILM LOOP	Continuous motion picture film, usually 8 or super 8mm, arranged in a cassette for easy adaption to the film-loop projector.
FILM STRIP	A series of still shots which are in permanent sequence and cannot be rearranged or revised. Commercial sources usually supply single frame filmstrips (about half the frame image area of 35mm slides).
FILMOGRAPH	A sequence of still pictures on a motion picture film.

FILTER	In photography: Compensating lenses placed between the camera lense and the scene to allow for color shifts and to highlight certain portions of the shot. In sound: Arrangement of capacitors, resistors, and coils to discriminate against, or pass any narrow or broad band of frequencies. Extremely useful to remove record scratch and tape hiss from output sound (lo pass), or to remove bassiness and rumble from sound (hi pass).
FINE CUT	The final step in editing a motion picture, on completion of which the scenes are of proper length and action between adjacent scenes is matched.
FIXED FOCUS LENSE	A camera lense that has no provision for focusing. The focus has been preset by the manufacturer to be in focus from about 6 feet to infinity (out of the range of the camera).
FIXER	A solution in which the chemcials harden the developed film image and change all undeveloped silver salts so they can be removed by washing.
FLANNEL (FELT) BOARD	A presentation board consisting of a flanrel or felt surface to which objects backed with flannel, felt, or sandpaper will adhere.
FLUTTER	Video: Cuased by loss of film loop in motion picture projectors. Detectable by blurred images on the screen. Audio: Worbles or vibrations in output sound. Flutter is more detectable on music passages. Caused by rhythmic variations in tape or record speed.
FOCAL FRAME	A camera attachment that overcomes the parallax problems and permits accurate framing and focusing of objects very close to the lense.
FOCAL PLANE SHUTTER	On more expensive cameras, a curtain located just in front of the film plane that keeps all lense light from striking the film. Upon release, a narrow slit in the curtain is moved at pre-determined speeds past the film, thereby sequentially exposing the entire film surface.
FOCUSING	Changing the distance between the lense and the film plane, to produce clear distinct images during picture taking or projection.

FRAME	An individual picture in a filmstrip or motion picture. In programmed instruction: A printed page or portion thereof, transparency or slide on which teaching information, instructions, responses, confirmation and similar stimulus is sequenced. A complete program contains a sequence of such frames.
GENERALIZATION	Responding in the same manner to several different stimuli.
GENERATION	A term denoting how far a particular tape, film, or slide is removed from the original. For example, the original is considered the master, a copy or "dupe" of the master is a first generation copy. Quality deteriorates with each generation but can be restored somewhat by special processing.
GRAPHICS	Of or relating to the written or printed word or the symbols or devices used in writing or printing to represent sound or convey meaning.
GROUP LOCK STEP	An instructional design whereby all students progress through all units of instruction at the same rate. Conventional instruction.
GUIDE NUMBER OR EXPOSURE GUIDE NUMBER	A number assigned to a film for the purpose of calculating exposure when flashbulbs or electronic flash units are used; it is based upon the film speed, the type of flash bulb or electronic flash unit and the shutter speed.
HALF FRAME	In photography, one half of the normal 35mm slide picture area. Half frame viewing area is 15.9mm high x 22.9mm wide. Standard 35mm viewing area is 22.9mm high x 34.2mm wide. Most commercial filmstrips are half frame configuration.
HALFTONE SUBJECTS	Printed illustrations consisting of uniformly spaced dots of varing size, which blend together and convey shades of gray.
HARDWARE	Equipment and electronic and mechanical components that comprise the production-playback facilities within a learning resources center.
HIGH-ANGLE SHOT	A scene photographed with the camera placed high, looking down on the subject.

HIGH-CONTRAST SUBJECT	An illustration solely of black lines or marks on white paper.
HOOK-AND-LOOP BOARD	A presentation board consisting of a cloth surface textured with minute nylon loops to which display materials backed with strips of tape having minute nylon hooks will intermesh and hold firmly.
Hz	Frequency of sound in cycles per second. Middle C on the piano keyboard produces 565 Hz per second. Raising Hz causes pitch to raise, lowering Hz, causes the opposite.
ICONIC	A pictorial representation or image. Symbol representing the actual item.
INCIDENT-LIGHT METHOD	The measurement of light falling on a scene by the use of an incident light meter held in the scene and aimed at the camera.
INDIVIDUALIZED INSTRUCTION	1. Tayloring an instructional unit to meet a specific student's needs. This can be as a result of pretesting or feedback later in a course. 2. The application of self-pacing study devices such as receiving instruction in a learning carrel.
INPUT JACK	An electrical connection device consisting of a socket which is internally connected to the input stage of an amplifier or recorder. Jacks are found in five common sizes. Standard ¼ inch audio, phono pin (center pin with tulip outer connection), mini jack, sub miniature, and cannon.
INSTRUCTION GUIDE	Suggestions for good utilization of an audio-visual program; it normally includes a description of content and preparatory, participating and follow-up questions and activities.
INSTRUCTIONAL SYSTEM	An integrated combination of resources (students, instructors, materials, equipment and facilities), techniques, and procedures performing efficiently the functions required to achieve specified learning objectives.
I P I	Individually prescribed instruction. Sometimes a function of computer managed instruction.

JUMP ACTION	A discontinuity in the smooth action within a motion picture scene, caused by momentary stopping and then starting the camera motor or by incorrectly removing a section of the film during the editing process.
JUMPER CORD	(See patch cord)
KEY LIGHT	The brightest light source on a scene, forming a large portion of the illumination.
KEYSTONE EFFECT	Trapezoidal shape of a projected image caused when the projector is not aligned horizontally and/or vertically with the projection surface.
LEARNING	A desired, measurable change in behavior due to an instructional process.
LEARNING RESOURCES CENTER	A designated centralized area or focal point within an educational facility or building which combines printed and non-printed (audio-visual) instructional materials and services.
LENSE DIAPHRAGM	The opening through which light enters a camera; its size controlled by an adjustable diaphragm.
LIGHTING RATIO	The relationship between the intensity of the key light and the intensity of the fill light as measured by a light meter.
LINEAR	An instructional technique that is characterized by short steps of instruction, constructed responses, and a maximum amount of overt activity.
LITERACY (visual and aural)	Competency in observing, hearing, understanding, and appreciating visual and aural representations or documentary segments of the individuals environment.
LIP SYNCHRONIZATION (LIP SYNC)	A recording of the speech of a person appearing in a motion picture so that the sound is heard at the same time his corresponding lip movements are observed.
LOG SHEET	A written record of all pictures taken, including scene numbers, takes, camera settings, and special remarks.
LONG SHOT	A general view of a subject and its setting, usually employed as an establishing shot for later close up shots within the filmed sequence.

MAGNETIC CHALKBOARD	A presentation board consisting of a metal sheet, covered with chalkboard paint, to which magnetic backed objects will adhere and one which chalk marks may be made.
MAGNETIC SOUND TRACK	Type of sound recording imposed on recording tape and single concept super 8mm and sound films. A narrow band of the film or tape passes a recording head which causes the magnetic flux density to vary in the film or tape material. These magnetic impressions remain in their new state until removed through re-recording or other erasure process.
MAGNETIC STRIPED FILM	Motion picture film (8mm or 16mm) to which a narrow stripe of magnetizable material is added which will accept sound impulses in the form of magnetic variations.
MAIN TITLE	The name of the production, shown at the start of an audio-visual material.
MASTER	A finished production: film, tape, slide series from which duplicate "dupes" copies will be made.
MATCHED ACTION	The smooth continuation of action between two adjacent, related motion picture scenes.
MEDIA MEDIUM	The communications channel by which material is presented to students.
MEDIUM SHOT	A view of a subject which eliminates unnecessary background and other details.
MICROFICHE	1. ULTRA-ULTRA MICROFICHE: The process of miniaturization by placing approximately 3,360 pages of printed matter on a single 4" X 6" film negative or postive. The read-back process must be accomplished on a microfiche card reader. 2. ULTRA MICROFICHE: Approximately 1,680 pages of printed matter on a single film. 3. MICROFICHE: Sixty to one hundred pages of printed matter on a single film. 4. ALSO MICRO CARD: Positive image on an opaque 4 X 6 (usually) card.
MICROPHONE	A device that converts accoustical energy (voice and music) into electrical energy for amplification or recording purposes. Two or more microphones are required to successfully record stereophonic sound.

MODE OF RESPONSE	The manner in which a student responds. This is normally dictated by the action verb in the criterion objective.
MODULAR SCHEDULING	The division of a course into small segments of instruction called modules. Each module supports one or more criterion objectives. Students receive only those modules that pretesting and counseling indicate they need.
MONITOR (audio)	A function or control of the audio recorder equipment that allows the operator to hear exactly what is being recorded. Audio monitoring may be accomplished through built in speakers, remote speakers or ear phones.
MONITOR (Television)	A televiewer or television receiver used in conjuction with television recording equipment to aid the production personnel in evaluating the series. A televiewer (usually large size) used in classrooms or studios for audience viewing.
MONOCHROME	Single color.
MONTAGE	1. A composite picture made up of several separate pictures. 2. The production of a rapid succession of images to illustrate an association of ideas.
MULTICAMERA FILMING	Recordings of the same action with two or more cameras operated at the same time and located at different positions in relation to the subject.
MULTI-IMAGE	Use of two or more projectors equipped with presequenced visual materials. This set-up can be effectively used to show comparisons, relationships and panoramic scenes.
MULTIMEDIA	Use of two or more audio-visual materials at same or closely related times. Also multiple image.
MULTI-MEDIA TEACHING SYSTEM	An instructional system that incorporates all or various instructional methods and media.
MULTIPLE TRACK	A system where students are grouped homogeniously according to ability. Each group progresses at a rate commensurate with the abilities of the group.
NARRATION	The verbal comments made to accompany the visuals.

NEGATIVE OPAQUE	A water-soluble carbon material brushed on high contrast negatives to eliminate marks, spots, and areas.
NON-REFLEX CAMERA	A camera that is equipped with a separate viewfinder is not accomplished directly through the photographic lense. Cameras of this type introduce a parallax problem when used for close up work.
OBJECTIVE SCENE OR CAMERA PLACEMENT	A scene recorded with the camera aimed toward the subject, from the audience point of view.
OMNI DIRECTIONAL MICROPHONE	Microphone that is equally sensitive to sound waves entering it from all directions. Most useful for center of the table placement during conferences.
OPAQUE PROJECTOR	A projector that can enlarge information from paper, pages from a book, or other nontranslucent or nontransparent materials.
OPTICAL SOUND	Means of imposing sound on motion picture film by varying light patterns. The optical sound track interrupts exciter lamp rays that fall onto a photoelectric cell, causing variations in photoelectric cell output which is then amplified providing the audio portion of the film. Optical sound tracks are permanent.
OPTIMUM STEP	The largest step of instruction a student is expected to master without frustration or boredom.
OUT-TAKES	Usable motion picture footage that has been removed during the editing process
OVERHEAD PROJECTOR	A projector which accepts transparent and translucent film or other plastic materials and projects the information prepared on them onto a screen. The main advantage of this projector is that it can be used in a normally lighted classroom.
OVERLAY	One or more additional transparent sheets with lettering or other matter that may be placed over a base transparency or opaque background. Up to five overlays may be projected without appreciable light attenuation of the projected image.
OVERPRINT	The superimposition of one scene over another; generally titles, captions or labels over a background scene or a specially prepared background.

OVERT BEHAVIOR	Behavior that is observable.
PAN (PANORAMA)	The movement of a motion picture or television camera, while picture taking in a horizontal plane (sideways).
PANTOGRAPH	A simple mechanical drawing aid used to enlarge or reduce pictures. The pantograph is usually attached to a drawing board or table.
PARALLAX	The difference between the vertical and horizontal position of an object in a photographed scene as viewed through a viewfinder and that recorded on film through the camera lense. Parallax error is magnified the closer the camera is to the subject.
PASTE-UP	The combination of illustrations and lettering, each unit of which is rubber-cemented in position on paper or cardboard by a temporary method.
PATCH CORD (audio)	Cables equipped with plugs, jacks or clips so that recorders can be connected to other sound equipment.
PERCEPTION	The process whereby an individual becomes aware of and interacts with his environment. The use of the senses to apprehend objects and events.
PERMANENT MOUNTING	The application of rubber cement to the back of a flat material to be mounted and also to the mount surface, then permitting the two surfaces to dry before adhering them together; or the use of dry-mount tissue placed between the material and the mount surface, with heat and pressure being applied to seal the layers together.
PHOTOGRAPHIC LIGHT METER	A device for measuring light levels, either incident upon or reflected from the subject to be photographed.
PHOTO MODIFIER	A large size camera used to enlarge or reduce art work.
PHOTO STABILIZATION	A two step rapid processing method for photographic paper.
PLANNING BOARD	A sheet of plywood or similar material with strips of plastic or clear acetate channels designed for holding storyboard cards. Physical size of the planning board is dictated by the local requirement.

PLUG, AUDIO	An electrical connection device placed on the end of audio cables and patch cords that normally mate with the audio jack of the identical configuration. Audio plugs are found in five common sizes; standard ¼ inch audio, phono pin (center pin with tulip outer connection), mini-plug, sub-miniature plug, and cannon plug.
POLYCHROME	Consisting of many colors.
PROGRAMMED INSTRUCTION	A (student centered) method of instruction which presents the information in planned steps or increments, with the appropriate answer immediately following each step. The answer acts as reinforcement for the student response and as motivation for further study or learning activity. The student is guided step-by-step to the successful completion of the assigned task or training exercise.
PROGRESSIVE DISCLOSURE	Exposing a series of items on a transparency or slide by moving an opaque mask during use or preparation.
PSYCHOMOTOR	Performance of motor skills.
PUMPING IN (PUMPING OUT)	The change of camera position from one motion picture scene to the next without change of camera angle with relation to the same subject.
RANGEFINDER	The camera feature which upon proper setting indicates the distance from camera to subject or sets the lense in focus at that range.
REAR SCREEN PROJECTION	Projecting on the back side of a translucent screen, the projector being behind the screen or off to one side projecting on a mirror. Employed extensively in study carrel construction.
REFLECTED LIGHT METHOD	The measurement of light reflected from a scene by the use of a reflected light meter held near the camera and aimed at the subject.
REGISTER BOARD	A surface with two or more small vertical posts for holding paper, cardboard, or film materials all correctly aligned when more than one layer must be assembled for filming.
RELEASE FORM	The form used to obtain written permission for use of pictures taken of persons or of their copyrighted materials.
RELEASE PRINT	A duplicate print of an original audio-visual material prepared for general use.

RESOLUTION	A more or less precise measurement of the resolving power of a video tape recorder system, that is, its ability to reproduce detail.
RETRIEVAL SYSTEM	A system that reclaims and restores information into its original place. The most frequently used retrieval system in a learning center is the computer retrieval system. Other examples of retrieval systems are: Index System Card X Systems Machine and Hand Sorted Card Systems
REVERBERATION (natural)	To become reflected or to continue in, or as if in, a series of echos. Resounding again.
REVERBERATION (electronic)	The process by which a portion of the original sound is diverted and electronically delayed for a fraction of a second, then reintroduced into the audio amplifier. Due to the varying delay time, synthetic echo or reverberation can be produced.
REVERSAL FILM	Film which, after exposure, is processed to produce a positive image on the same film.
ROUGH CUT	The second step in editing a motion picture, on completion of which the length of scenes has been shortened somewhat but not necessarily to final length, and action between adjacent scenes is not yet exactly matched.
SCENE (SHOT)	The basic element that makes up the visuals of an audio-visual program; each separate picture or amount of motion picture footage exposed when the camera "run" button is pushed and then released.
SCRIPT	The specific directions for picture taking for each scene or the art work required in the form of a listing of scenes with accompanying narration or captions.
SELF PACING	A characteristic of training in which each student progresses at a rate which is most advantageous to his learning.
SEQUENCE	A section of an audio-visual program, more or less complete in itself, and made up of a series of related shots or scenes.

SHADING FILM (RUB ON TEXTURES)	Textures and patterns printed on acetate sheets having adhesive backing for adhering to cardboard, paper, acetate or film.
SHOT (SCENE)	See SCENE
SHUTTER	Part of a camera that prevents lense light from entering the camera except at exposure time. Shutter settings determine exposure time. In motion picture projectors, a rotating disk containing a slot that is synchronized with the pull down claw, so that the opaque area of the disc covers the projection aperture while the film is being advanced.
SHUTTER SPEED	The interval between opening and closing of the shutter of a camera, measured in fractions of a second. Normal shutter speeds for still cameras are: 1, 1/2, 1/4, 1/8, 1/15, 1/30, 1/60, 1/125, 1/250, 1/500 second.
SIDE LIGHTING	Secondary light placed beside the camera (on the side and opposite the main light) and at camera height. It softens shadows created by the main light (key light), thus bringing out more detail in the subject. Sometime called fill light.
SINGLE CONCEPT	A discrete skill or limited aspect of a topic. A single concept audio-visual program usually deals with a single teaching step or a portion thereof.
SINGLE FRAME FILMSTRIP	A series of pictures oriented horizontally across the width of 35mm film and of such a size that two adjacent pictures or frames combined are 22.9 X 34.2mm.
SINGLE FRAMING	Exposing one frame at a time on motion picture film, as opposed to continuous exposure (8 frames per second or faster).
SINGLE LENS REFLEX CAMERA	Cameras that permit through-the-lense viewing of the subject. This type is preferred for close-up and copy photography.
SLATING	Putting on film a few frames of printed information prior to the regular filming of a motion picture scene in order to identify the scene and take number.
SLIDE	A small photographic transparency designed for projection, normally mounted on a 2" X 2" mount. Slide mount mask openings range from the single frame size, (15.9mm X 22.9mm) to the super slide which has a mask opening of (38mm X 38mm).
SMS	Subject Matter Specialist

SOFTWARE	Tangible stimulus items, for example, a recorded lesson on tape is software whereas the tape recorder -- playback unit is considered hardware.
SOUND	Mechanical radiant energy that is transmitted by longitudinal pressure waves in air or other material medium and is the objective cause of hearing.
SOUND STRIPING	See magnetic striped film.
SPEAKER	(1) Impedence, the alternating current resistance of a speaker voice coil operating at 1000 Hz. This figure will differ slightly from the direct current resistance. (2) Phasing, so arranging loudspeaker and terminals so that in multiple speaker connections, all speaker cones move in the same direction at the same time. Improper speaker phasing results in sound cancellation rather than sound enhancement.
SPECIAL EFFECTS GENERATOR	A television component which allows the director to select one of a number of inputs (from cameras, film chains, other video tape units) or to mix two or more of these inputs into a composite output. The number of inputs and their nature as well as the number and kinds of effects available (e.g., superimposition, fades, dissolves, wipes, inserts, etc) depend upon the price and complexity of the special effects generator involved.
SPECIFICATIONS	The framework and limits within which audio-visual materials are produced; may include such factors as length, materials, special techniques, assistance required, completion date and budget.
SPEED RECORDING (high speed tape duplicator)	Special recording machine that allows a generation tape to be copied from a master tape at four to ten times the original playing speed. High speed copiers are available for reproducing one to ten copies.
SQUARING METHOD	The method for enlarging or reducing a diagram by placing a grid over the original and copying relative positions of lines on a grid of another size (smaller or larger scale, or proportioned).

S - R PAIR

In learning theory, a model of the behavioral process considered from the viewpoint of a systems approach. A stimulus is presented to the student. The student then responds by some form of change in the behavior state. An example: A person wants a book on the desk. The stimulus of the book reaches the student's eyes (s). The student picks up the book (R).

STEREO SLIDES

A double-image slide prepared in pairs from photographs taken with a stereographic camera. When viewed through a stereoviewer, the left eye sees one image, the right eye the other. The result is a highly realistic three-dimensional effect.

STIMULUS

(1) That part of a student's environment which makes some demand upon him.

(2) Any objectively describable situation that is the occasion for a student's response.

(3) Anything that provokes behavior.

STOP BATH

A solution in which the chemicals stop the action of developer on exposed film.

STORYBOARD

A series of sketches or pictures which visualize each topic or sequence in an audio-visual program to be produced; generally prepared after the treatment and content outline and before the script.

STRING OUT

The first step in editing a motion picture, on completion of which all scenes are original camera length and have been spliced together in proper sequence.

SUBJECT SPECIALIST

A person having broad knowledge of the subject content for an audio-visual program to be produced.

SUBJECTIVE SCENE

A scene recorded with the camera placed in the subject's or viewer's position and aimed at the action he is performing.

SUBTITLES

Words, phrases, or sentences that appear within an audio-visual program to explain, emphasize, or clarify a point.

SUPER 8mm FILM

As compared to standard 8mm, super 8 has the sprocket holes placed closer to the film edge and their size has been reduced. This allows for about a 50% larger picture area. The picture aspect ratio is exactly 4.3. Magnetic sound tracks may be added to super 8 films.

SYNCHRONIZATION	Arrangement of visual and audio information so they coincide, primarily on motion picture film and slide-cassette presentations.
TACHISTOSCOPE	An apparatus for the brief exposure of visual stimuli.
TAKE (OF A SCENE)	One exposure among two or more for the same scene; successive takes of the same scene are numbered from one upward.
TARGET POPULATION	Personnel assigned or eligible for assignment to a training course. Samples from this population are used in evaluating training material during its development and validation.
TEACHING MACHINE	Any device or series of devices which are used to teach an individual or group of students in place of an instructor.
TEACHING STEP	The behavioral specification of a knowledge or skill that must be learned to permit satisfactory achievement of a criterion objective.
TECHNICAL EDIT	An edit of instructional material done by the subject matter specialist to correct errors in technical material.
TECHNICAL STAFF	A person or persons responsible for the photography, graphic art work, and sound recording in producing audio-visual materials.
TELEPHOTO LENSE	A camera lense which permits a closer view of a subject than would be obtained by a normal lense from the same position. Telephoto lenses attach to or replace the normal camera lense.
TEMPORARY MOUNTING	The application of rubber cement to the back of an illustration or lettering and immediate placement on a mount surface while the cement is still wet.
THRESHOLD KNOWLEDGE TEST (TKT)	An examination based on the criterion objectives, given prior to the development of the instructional series to determine what portions of the teaching steps can be omitted from the series such as what and how many adjustive devices should be incorporated, or what considerations should be given to technical terminology, etc.
THUMSPOT	A visible mark placed in the lower left corner of a slide which indicates the proper position for correctly viewing the slide.

TILT	The movement of a camera in a vertical plane.
TIME-LAPSE PHOTOGRAPHY	The exposing of individual motion picture frames at a much slower rate than normal, for projection at normal speed; the method accelerates action that normally takes place too slowly for motion to be perceived.
TONER	Black powder used in the electronic duplicating process to deposit on the charged paper or film and provide a visible opaque image.
TRANSITIONAL DEVICES	The use of such techniques as fade-outs, fade-in and dissolves to bridge space and time in motion pictures and television recordings.
TRANSLUCENT	Admitting and diffusing light so that objects beyond cannot be clearly distinguished.
TRANSPARENCY	Through common usage, the term transparency is now generally accepted in educational contexts as referring to the 9 ½" X 7½" aperture transparency used on overhead projectors. Standard transparency frames are ordered and controlled as Form Number ATC-431.
TRANSPORT MECHANISM	In tape decks and recorders, the motors and mechanical assemblies that move the tape past the recording and playback heads.
TREATMENT	A descriptive synopsis of how the content of an audio-visual material may be organized and presented.
TWIN LENSE REFLEX CAMERA	Cameras that permit viewing the subject through a separate lense located just above the main optic or picture taking lense. The viewing lense and picture taking lenses are mechanically connected together so that the viewer will see an accurate view of the subject in the same size that will appear on the film negative.
VALIDATION	Progressive testing of an instructional sequence before implementation to evaluate its effectiveness, usually consisting of three phases: Individual tryouts, group tryouts, and operational tryouts.
VIEWER	A device that magnifies and projects a slide or film image from the rear onto a translucent screen.
VISUAL LITERACY	Competency in observing, understanding and appreciating visual stimuli.

VIDICON	The television pickup tube most often used in single camera VTR systems.
VTR	Video Tape Recorder
WIDE-ANGLE LENSE	A camera lense which permits a wider view than would be obtained by a normal lense from the same position. Wide-angle lenses attch to or replace the normal camera lense.
WIPE	An optical effect in motion pictures in which a new scene seems to push the previous scene off the screen.
WORKPRINT	An inexpensive copy of original motion picture footage used during editing and to which the original film is matched before duplicate copies are made.
WOW	Undesirable effect in recorded sound caused by variations in record or tape speeds.
ZOOM LENSE	A camera lense of variable magnification which permits a smooth change of subject coverage between distance and close-up without changing camera position.

ATC-SHEPPARD AFB TEX. 76-1977

Name: Cluster:

Assess your ability to use the following audio-visual equipment.

(1) am competent (2) need refresher (3) am complete novice

Beseler Overhead Projector	1	2	3
Bell & Howell 16mm Movie Projector	1	2	3
DuKane Automatic Sound/Filmstrip Projector	1	2	3
Kodak Carousel Slide Projector	1	2	3
Wollensak Slide/Sync Tape Recorder	1	2	3
JVC Video Equipment	1	2	3

Rate the use of the following audio-visual equipment in competency based instruction (1 - 6).

Beseler Overhead Projector _____

Bell & Howell 16mm Movie Projector _____

DuKane Automatic Sound/Filmstrip Projector _____

Kodak Carousel Slide Projector _____

Wollensak Slide/Sync Tape Recorder _____

JVC Video Equipment _____

Assess your ability to produce materials for the following audio-visual equipment.

(1) am competent (2) need refresher (3) am complete novice

Besler Overhead Projector	1	2	3
Bell & Howell 16mm Movie Projector	1	2	3
DuKane Automatic Sound/Filmstrip Projector	1	2	3
Kodak Carousel Slide Projector	1	2	3
Wollensak Slide/Sync Tape Recorder	1	2	3
JVC Video Equipment	1	2	3

Use Media? Me? I'd Like To, But . . .

Norma M. Harrod

Any "media leader" knows that there are many diverse excuses for a closed-circuit linear mind. Try these quips in your memory-scope. No doubt these reruns, tried and true, will bring many more to mind.

1. I can't find the electrical outlet.
2. The equipment doesn't like me.
3. Machines and I don't get along.
4. There just isn't enough time to mess with all that garbage.
5. You mean you have to plug the VTR into the electricity, too?
6. *At this point in time*, I must state that I absolutely do not watch television.
7. That kind of foolishness should only be done in the media class.
8. The junk never works right when I want to use it.
9. The people in charge won't let anyone else touch the equipment, so there's no sense in trying.
10. I like to use media, but it doesn't fit into my subject area.
11. Kids can't even read, so how can they fool around with trivial playthings!
12. I don't have a camera of my own.
13. We did that three years ago.
14. Those luxuries just cost too much money.
15. Sure, I use media. See the pictures on my bulletin board? I've used them for years.
16. Not everyone can be a creative teacher.
17. I didn't have a class in AV, so how can you expect me to know what to do?
18. My students aren't interested in that kind of silliness.
19. I've spent years using my lectures—they're perfect.
20. When I was a child, we didn't have all those extra things in school.
21. We have so many areas in the curriculum already, anyone can see there isn't time for another extra.
22. Our school doesn't have a film budget.
23. How can you improve on the written word?
24. Send this stupid thing in for repair—the bulb is burned out.
25. You can't let kids mess with that expensive equipment—they'll break it.
26. Somebody stole my extension cord.
27. Using equipment always causes too much confusion, and it interrupts my routine.
28. Only departments with all the money, like athletics, have the hardware.
29. My school is too conservative for such radical changes.
30. I don't get paid extra for making media presentations, so why should I do them!
31. The curriculum is too inflexible to add anything else.
32. The classroom is no place for entertainment.
33. Obviously, AV is just another gimmick for obtaining federal funny money.
34. You mean, I have to plug in the cable jack, too?
35. You have to sign up ahead of time whenever you want to use the equipment. Who can plan that far ahead?
36. Everytime I hook up the equipment, something breaks, so I just give up!
37. The AV hardware always blows a fuse.
38. It doesn't fit into my lesson plans.
39. Television and film are so passive—my lectures are much better.
40. The filmstrip projector always chews up the film.
41. The tape recorder erased the sound.
42. Kids have to learn to read—they already can see and hear.
43. I'm no technician.
44. Of course, I rewound the videotape. Can't you see the reels have been switched around?
45. You plug it in—I don't want to get shocked.
46. Using all that electricity costs the school district too much money.
47. Working with all that extra material takes too much of my free time.
48. Nobody appreciates all that work.
49. How can I be accountable in working with such intangible things!
50. By the time the kids work all the ditto sheets and fill in the notebooks, the time just seems to disappear.

"Use media? Me? I'd like to, but. . ." Is it, in reality, that "I'm afraid"?

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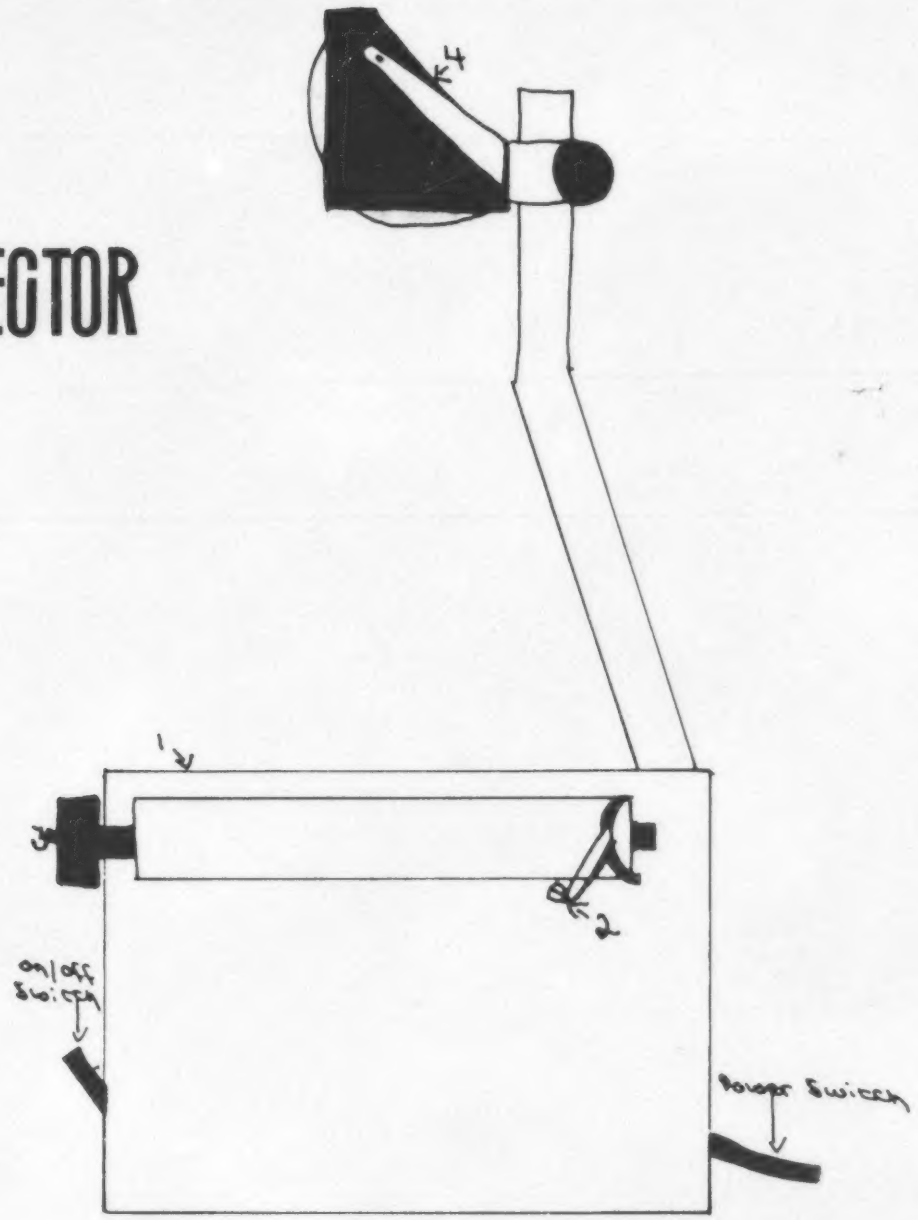
OVERHEAD PROJECTOR



How to Operate the Overhead Projector

1. Set projector on a flat surface at a distance of six to nine feet from the screen.

2. Plug in the power cord.

3. Turn power switch to "on" position.

4. Place transparency or opaque object on projection stage (1).
   a. When you use a clear acetate sheet, use a grease pencil which can be erased with a moist tissue.
   b. When you use a roll of acetate instead os a single sheet, roll it across the stage by turning the crank (2) clockwise. Rewind the roll by turning the crank counterclockwise.

5. Focus image on the screen by turning the focus knob (3).

6. Tilt the lens housing (4) to change the height of the image on the screen.

7. Shut off the machine lamp when you want to talk to the class. Do not move the machine until it has fully cooled; this adds lifetime to the projection bulb.

8. Pack-up when finished: Unplug cord after projector has cooled and return to storage place.

Maintenance

Clean the lens with a camel's hair brush for large, loose dirt; rubber syringe will remove remaining dust. You may also dampen a Q-Tip with lens cleaning solution and rub in a circular pattern and then, dry with another Q-Tip in the same circular pattern. This is number four on the diagram.

The aperture or projection stage (1) may be cleaned by using camera lens tissue, camel's hair brush, water on Kleenex, or window cleaner on tissue.

Remove the power cord by the plug.

Keep the machine covered when not in use.

Clean the projector thoroughly at least once a year.

OVERHEAD PROJECTOR

Most students have seen an overhead projector at some time. It is a machine with a powerful light which can shine through a large plastic (acetate) picture or diagram and show it in a larger size on a screen. It works much like a slide projector. As with other machines, there are some reasons why you might want to use the overhead and other reasons why you might not want to. As you read these facts about the overhead projector, fill in the missing words from those on the list.

lighted	controls	overlays	map
audience	face	attachment	uncover
acetate	piece	operate	projector
	grease		

1. The _____ is simple to _____ since it has only three _____.
2. It may be used in a _____ room.
3. If you wish to enlarge and trace the outline of a _____ or _____, you can project it on a large piece of paper and make your drawing.
4. You may cover all of your material except the part you wish your _____ to see, then _____ it a little at a time.
5. Also you may use _____ (that is, pieces that fit over each other; each transparency adds a different part).
6. You may write on your _____ piece with a _____ pencil.
7. With a special _____ you may make the _____ appear to move.
8. You may _____ your audience when giving a report.

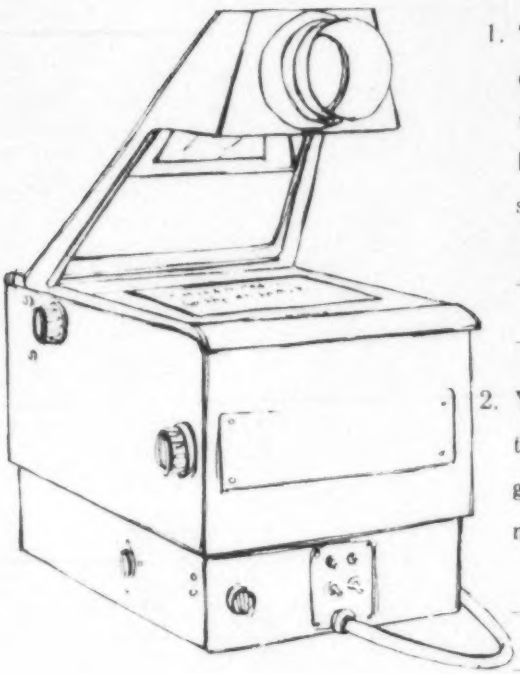
Can you think of some reasons or times when you would not want to use this projector?

_____

_____

_____

OVERHEAD PROJECTOR



1. The overhead projector may be used in many different ways. Besides using regular transparencies (which will be discussed separately) many other objects can be used to show shapes and forms. Can you think of some that can be used?

2. You may present your arithmetic problems, to let the class determine if they are correct, by using a grease pencil on clear acetate. What else in arithmetic might you present using this equipment?

3. If you are going to learn a new game like soccer or volleyball, the game may be shown, step by step by drawing and discussing. How could you later use the acetate and grease pencil to improve performance?

4. How do you think the acetate sheet or roll and grease pencil might be used in music?

5. What uses could you think up for science class?

6. Try experimenting with a partially darkened room to sharpen images. Did it make any difference? Were there particular objects that showed up more sharply than others?

TRANSPARENCIES

Commercial transparencies (those made by companies who specialize in producing educational materials) are often used. They may be of a fairly large size, since the stage or projection surface is 10" × 10".

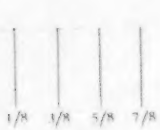
Frequently *overlays* are used. You will have a chance now to develop one of these sets of overlays on this page.

Suppose we are going to learn about a ruler. The first transparency will show the *inches*. Draw the line for 2, 3, 4, 5, and 6 inches and label each.

The second transparency (first overlay) shows *half inches*. Draw in 1½, 2½, 3½, 4½, and 5½ and label each.

The next overlay will show *quarter inches*. Put in the lines for 1¼, 1¾, 2¼, 2¾, 3¼, 3¾, 4¼, 4¾, 5¼, and 5¾. Label each one.

The last one will show each *eighth* of an inch [except 2/8 (which is 1/4) 4/8 (which is 1/2), 6/8 (which is 3/4), and 8/8 (which is 1)]. You will do the rest.

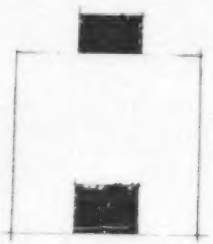


Overlays may be bound together like a book. You show the first, then the first and second, then the first, second, and third, and so on. However, not all transparency overlays are bound, as you may want to vary the order.

MORE ON TRANSPARENCIES

Since transparencies can be made fairly small and shown on a wall, in color and in larger size, they help us save on materials and space. Help yourself learn more about transparencies by completing the missing parts in the sentences. Each small line stands for one letter; the beginning letter is provided.

1. Transparencies may be black or may be made in c _ _ _ _. Several d _ _ _ _ _ _ _ _ _ colors may show on the same transparency, as when the land s _ _ _ _ _ _ of a country is shown.
2. However, if there is a series of o _ _ _ _ _ _ _ showing a system or process, such as multiplication, each s _ _ is often shown in a different color.



3. Some t _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ are dimensional and s _ _ basic principals such as motion, forces, etc. This is one of the n _ _ develpoments and there are not as many of these available as in the regular, flat transparencies.
4. You can make your own transparencies from a "master" which is printed on bond paper or translucent tracing p _ _ _ _. There are several ways to m _ _ _ these. Many t _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ can be made from one master.
5. Felt tip markers or liquid inks may be used if you wish to add c _ _ _ _ to the transparencies you make.
6. If you want to label your transparencies, you may use a variety of systems to make the letters. It is important to learn the correct size of letters to u _ _. If the transparency is placed on the floor and you can r _ _ the l _ _ _ _ _ _ from a standing position, they are probably b _ enough.

EMPHASIZING THINKING SKILLS

You can use the overhead projector to improve reports you give to the class. Here are some activities for you.

1. Your assignment is to show on a graph the growth of population in the suburbs of the city and indicate how rapidly it might rise in the future. Make a transparency of the kind of graph you need ahead of time, placing the dots on the graph, then connecting them with a grease pencil as you discuss the subject.

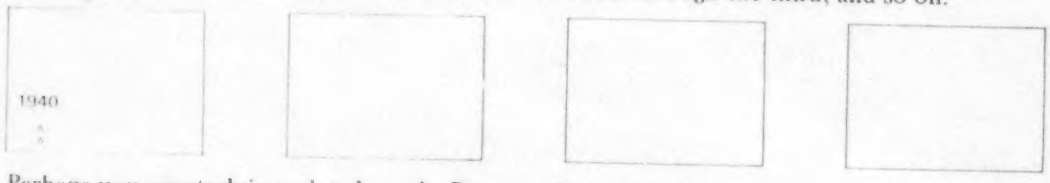
Suburban Population (in thousands) 1940-1980

21
18
15
12
9
6
3
0

1940 1945 1950 1955 1960 1965 1970 1975 1980

Put the dots on the graph above. (Here are the figures you need for the dots; these are given in thousands and in order from 1940 to 1980: 2, 3, 5, 6½, 8, 10, 12½, 15½, 19.)

2. Suppose you wanted to show this same information with a series of overlays. You will use four overlays, one for 1940, one for 1950, one for 1960, and one for 1970. You will use one figure (△) for every 1000 people. The first one (1940) might look like the one at the left below. Sketch out how the others might look. Remember that everything on the first one will show through the second, everything on the first and second will show through the third, and so on.



3. Perhaps you are studying related words. Prepare a list using a group such as diction, dictionary, dictate, verdict, contradict, edict. Uncover one line at a time. Discuss the parts of the word. Practice below by copying these words. Underline each root, circle each suffix and put a check above each prefix. Perhaps you can add some words to the above list.

MOTION ON THE OVERHEAD PROJECTOR

Suppose you wanted to work with a subject which required movement or motion. There are several ways of accomplishing this with an overhead projector.

1. On a transparency of a clock face, you could show time by moving the position of the hands, or on a transparency of a gymnasium floor, you could show different positions of players in a game. What might you show in social studies?

   What kind of motion or movement could be provided for music?

   What could you do with a story?

2. Another device allows you to time the presentation of words, phrases, and sentences. They could be shown at slower or faster speeds. In what subjects might you use this device?

   How would it help you?

3. Still another way of showing movement is with light-polarizing filters. These make "blinking lights" possible. These filters also can produce flowing or circling effects.

   How might you use these?

4. A particular kind of device, used in science, shows test-tube reactions. In what kinds of studies would this be valuable?

5. Some overhead projectors have a roll of acetate that can be rolled across the "stage." The roll attachment is a "lighted chalkboard," which can be turned back. What is the advantage of being able to turn it back?

Thermocopy Transparencies

The thermocopy process makes use of a high-intensity infrared lamp to copy images that absorb infrared rays. When thermocopy equipment is used, the image is literally "burned into" the transparent film (in this case, either Labelon or 3-M Color Image). The thermocopy process is extremely popular because it takes only four seconds to complete.

The thermocopy unit is designed to accommodate materials 8½-by-11 inches. However, it will accept materials up to 9 inches wide and since the materials are carried through the machine on a belt, there is really no limit to the length.

The following steps are used in making a thermocopy transparency:

1. The original, our master, can be any print, artwork, or writing that contains some carbon, which will absorb the heat of the lamp. Most print and written materials may be used with the exception of ball-point pens, felt-tip and nylon-tip markers. If preparing your own master on drafting vellum, it is best to use pencil or India ink.

2. The thermocopy film is placed over the material to be copied. One side of the film is specially-treated and is positioned into contact with the master by placing the notch in the upper right-hand corner.

3. Place the film and the master into a carrier for safe transport through the machine.

4. Set the dial on the thermocopy machine to the proper setting for the type of film that you are using.

5. Insert the carrier with the transparency film and master into the machine with the notch still in the upper right-hand corner.

6. Take carrier from the bottom of machine when it appears.

7. Use masking tape to attach transparency to frame.

8. Markers or Cut-O-Color may be used to add color to your transparency.

How to Make Contact Color Lifts for Transparency Use

1. Buy transparent (clear) Contact paper.

2. Choose a picture that has a clay base (Newsweek, Time & National Geographic are all clay-based). Test by wetting finger slightly, rub on white margin or back of page in corner. If finger appears to have a white milky look, paper is clay-based. Covers & pictures from the New Yorker are difficult to lift. They are too heavy.

3. Cut pictures neatly, then cut Contact to size.

4. Apply Contact by separating backing from transparent film. Be sure to hold it over the picture so that the adhesive faces down toward the picture and the center of the adhesive is lower. Let center of Contact meet center of picture. Then, lower one side at a time to make effective contact of both surfaces. Avoid bubbles. A second method of applying contact would be to separate end of backing sheets; apply to the picture and slowly remove the backing allowing the adhesive to adhere to the picture in a slow, steady movement. Apply light pressure as sticky portion meets picture.

5. Using some sort of burnishing tool (a hard plastic rolling pin, ruler etc.) apply pressure in all directions over the entire surface of the picture. You may want to cover the picture with the discarded backing to avoid scratches. Where you have not made good contact, you will see white spots that occur between the picture and the film. It is easier to see on darker pictures. Practising with smaller pictures will help you to become proficient in the process.

6. Allow the film and the picture to set for about five minutes.

7. Prepare a pan of warm water with a tiny bit of detergent.

8. Place picture with Contact portion down in the pan of water and allow it to set for a minute or two. You will see the water begin to soak through the paper. When it has set for awhile, lift the picture away from the Contact. If it has set long enough, it should lift easily with the entire page coming off in one easy pan.

9. Using a piece of cotton, a wet towel, or your fingers, remove the clay residue from the back of the Contact paper. It will have a milky white look to start and will get clearer as you remove the residue. It is best to do this under running water or in a pan of clear water.

10. Run both sides of the picture under water and allow to dry. If possible hang with a clothespin on a line.

11. The lift is complete. You can attach it to a piece of clear acetate by placing the acetate and the picture face up together in a pan of water. The water will allow you to move the picture around for perfect placement.

12. Remove from pan, get rid of all bubbles by rubbing from center to sides with a burnishing tool.